

# TOSHIBA

FILE NO. 023-200407

## SERVICE MANUAL

# Color Television

N3ES Chassis

# 35A44

### – SUMMARY –

35A44 is the same as 36A43 except for the parts tabled on this manual.

Use this service manual together with the service manual of 36A43 (File No. 020-200303).

## REPLACEMENT PARTS LIST DIFFERENCES

| Location No.         | Parts No. | Description                                       |
|----------------------|-----------|---------------------------------------------------|
| CAPACITORS           |           |                                                   |
| C818                 | 24503237  | PLASTIC FILM CF92 T 1250VH 2200PF H               |
| CG05                 | 24092789  | CERAMIC CHIP, 6.3V B 1UF K                        |
| COILS & TRANSFORMERS |           |                                                   |
| L441                 | 23233107  | COIL, LIN-X20H37-3.5A-18MMH TLN2138AH             |
| L502                 | 23289926  | COIL, PEAKING, TRF4470AU                          |
| LA01                 | 23289918  | COIL, PEAKING, TRF4100AU                          |
| LG01                 | 23289922  | COIL, PEAKING, TRF4220AU                          |
| LI02                 | 23246196  | COIL, CHIP INDUCTOR, TRF41R2CG                    |
| LI51                 | 23289926  | COIL, PEAKING, TRF4470AU                          |
| LI52                 | 23289919  | COIL, PEAKING, TRF4R22AU                          |
| LI53                 | 23289921  | COIL, PEAKING, TRF4180AU                          |
| LI55                 | 23289907  | COIL, PEAKING, TRF4129AU                          |
| LI56                 | 23289921  | COIL, PEAKING, TRF4180AU                          |
| LI57                 | 23289898  | COIL, PEAKING, TRF4R22AU                          |
| LV01                 | 23289918  | COIL, PEAKING, TRF4100AU                          |
| LZ01                 | 23289918  | COIL, PEAKING, TRF4100AU                          |
| △ T801               | 23211781  | COIL, LINE FILTER 26X31H TRF3229AR                |
| SEMICONDUCTORS       |           |                                                   |
| Q611                 | 23205264  | TRANSISTOR, NPN KTC2874A-AT                       |
| Q613                 | 23205264  | TRANSISTOR, NPN KTC2874A-AT                       |
| QA02                 | 23009643  | IC, 4K BIT CMOS EEPROM AT24C04A-10PI-2.7          |
| QS63                 | 23205264  | TRANSISTOR, NPN KTC2874A                          |
| QS64                 | 23205264  | TRANSISTOR, NPN KTC2874A                          |
| D408                 | 23118052  | DIODE, RU4Z LF-L1                                 |
| MISCELLANEOUS        |           |                                                   |
| F470A                | 23165102  | FUSE HOLDER, CLIP, PC-BOARD D=5.2                 |
| F801A                | 23165102  | FUSE HOLDER, CLIP, PC-BOARD D=5.2                 |
| F802A                | 23165102  | FUSE HOLDER, CLIP, PC-BOARD D=5.2                 |
| F803A                | 23165102  | FUSE HOLDER, CLIP, PC-BOARD D=5.2                 |
| △ M461B              | 23509111  | FOCUS CABLE                                       |
| M461C                | 23509372  | CABLE ASSY, SCREEN                                |
| M603A                | 23103914  | CORE, FERRITE CORE 15X22X7 TFE1015AD              |
| P405                 | 23368578  | CONNECTOR, PLUG 4P, 2.5MM G JST-EH, B4B-EH-F1-TV4 |
| P501                 | 23368579  | CONNECTOR, PLUG 5P, 2.5MM G JST-EH, B5B-EH-F1-TV4 |
| P603                 | 23368579  | CONNECTOR, PLUG 5P, 2.5MM G JST-EH, B5B-EH-F1-TV4 |
| P604                 | 23368579  | CONNECTOR, PLUG 5P, 2.5MM G JST-EH, B5B-EH-F1-TV4 |
| P901                 | 23368579  | CONNECTOR, PLUG 5P, 2.5MM G JST-EH, B5B-EH-F1-TV4 |
| P902                 | 23368578  | CONNECTOR, PLUG 4P, 2.5MM G JST-EH, B4B-EH-F1-TV4 |
| PV02                 | 23365573  | CONNECTOR, JACK, PIN(2E:OFF+2R:OFF+2              |
| △ V901A              | 23903174  | SOCKET, ISH46S-EN ING                             |
| PC BOARD ASSEMBLIES  |           |                                                   |
| * U901               | 23762357  | PC BOARD ASSY, CRT/D PD0629E PWU                  |
| * U902               | 23762358  | PC BOARD ASSY, MAIN PD1050E PWU                   |
| PICTURE TUBE         |           |                                                   |
| △ V901               | 23324116  | PICTURE TUBE, 35VFS MTPD ITC A89AKB50X05(V)       |
| ACCESSORIES          |           |                                                   |
| K912                 | 23306517  | REMOCON HAND UNIT IR, CTVUSA CT-90157             |
| Y101                 | 23566352  | OWNERS MANUAL, ENGLISH/FRENCH                     |
| CABINET PARTS        |           |                                                   |
| △ A201               | 23530950  | DOOR, F,CVR ASY                                   |
| A213                 | 23428210  | DOOR, DOOR                                        |
| A223                 | 23445730  | BUTTON, CONTROL BUTTON                            |

| Location No. | Parts No. | Description |
|--------------|-----------|-------------|
|              |           |             |

**TOSHIBA CORPORATION**  
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN

**TOSHIBA**

FILE NO. 020-200303

**SERVICE MANUAL**

# **COLOR TELEVISION**

**N3ES Chassis**

# **36A43**

*(TAC0302)*

DOCUMENT CREATED IN JAPAN, Mar., 2003

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## CHAPTER 1 GENERAL ADJUSTMENTS

### SAFETY INSTRUCTIONS

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

#### X-RAY RADIATION PRECAUTION

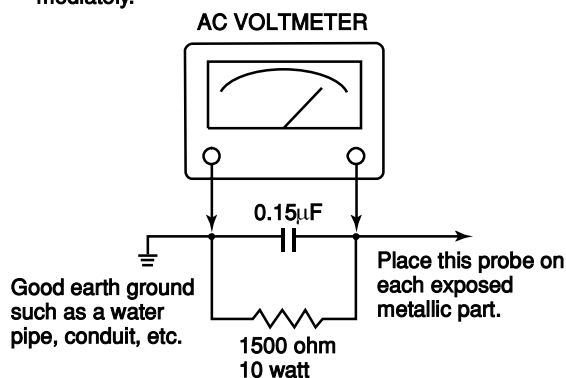
1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is (A) kV at zero beam current (minimum brightness) under a 120V AC power source. The high voltage must not, under any circumstances, exceed (B) kV.  
**Refer to table-1 for high voltage (A), (B).  
(See SETTING & ADJUSTING DATA on page 13)**  
Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
2. This receiver is equipped with a Fail Safe (FS) circuit which prevents the receiver from producing an excessively high voltage even if the B+ voltage increases abnormally. Each time the receiver is serviced, the FS circuit must be checked to determine that the circuit is properly functioning, following the FS CIRCUIT CHECK procedure in this manual.
3. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
4. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

#### SAFETY PRECAUTION

**WARNING :** Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120V AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner:

Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15  $\mu$ F AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15  $\mu$ F capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3 volts rms. This corresponds to 0.2 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



#### PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF SERVICE MANUAL.

## SET-UP ADJUSTMENT

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed. Perform the adjustments in order as follows :

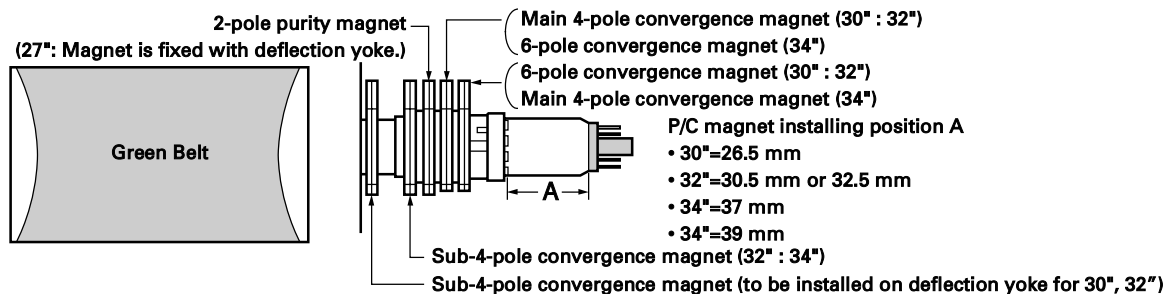
1. Color Purity
2. Convergence
3. White Balance

**Note:** The PURITY/CONVERGENCE MAGNET assembly and rubber wedges need mechanical positioning. Refer to figure 1.

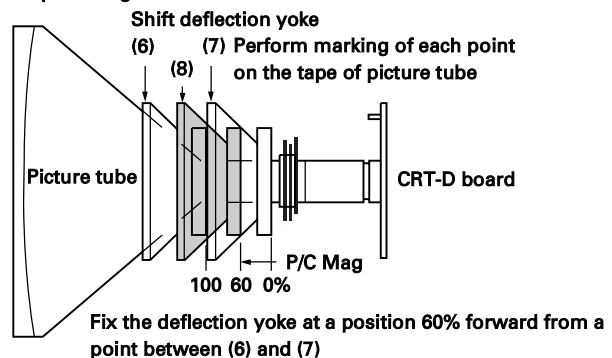
### COLOR PURITY ADJUSTMENT

- (1) Let the screen face in the installing direction or toward the east (when it is to be moved), bring up the service mode screen after demagnetizing (front, left, right, and top) with the degaussing coil, receive white signals by pressing the [TV/VIDEO] button, and then the receiver should be operated for more than 40 minutes.
- (2) Perform rough adjustment of the central convergence with the P/C magnet according to the adjustment item.
- (3) Receive built-in green signals, loosen set screws on the deflection yoke, remove rubber wedges, and shift the deflection yoke to toward front.
- (4) Move alternately the two 2-pole magnets of the P/C magnets so that the green raster can come to the center of the screen.

Figure 1.



- (5) Receive built-in red and blue signals, check that there is no inclination of the single color raster toward one side, and if each color tilts to a great extent, make adjustment with the 2-pole magnet so that the 3 colors will come to the center evenly.
- (6) Receive the green raster, shift the deflection yoke from a foremost position (hitting against the picture tube) to a backward position horizontally, stop the deflection yoke at a position where it begins to become a green raster, and perform accurate marking on the picture tube.
- (7) Shift the deflection yoke further backward, and perform accurate marking at a position where the green raster begins to being luck.
- (8) Fix the deflection yoke at a position 60% forward within the range marked in items (6) and (7) above.



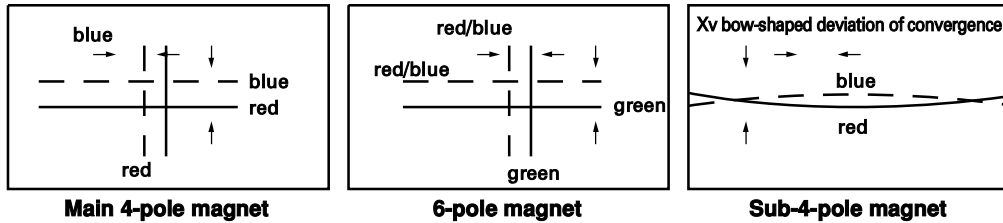
### CONVERGENCE ADJUSTMENTS

\* Adjust the convergence magnet to get vest convergence in the the order to (1) ~ (5).

#### ■ CENTER CONVERGENCE:

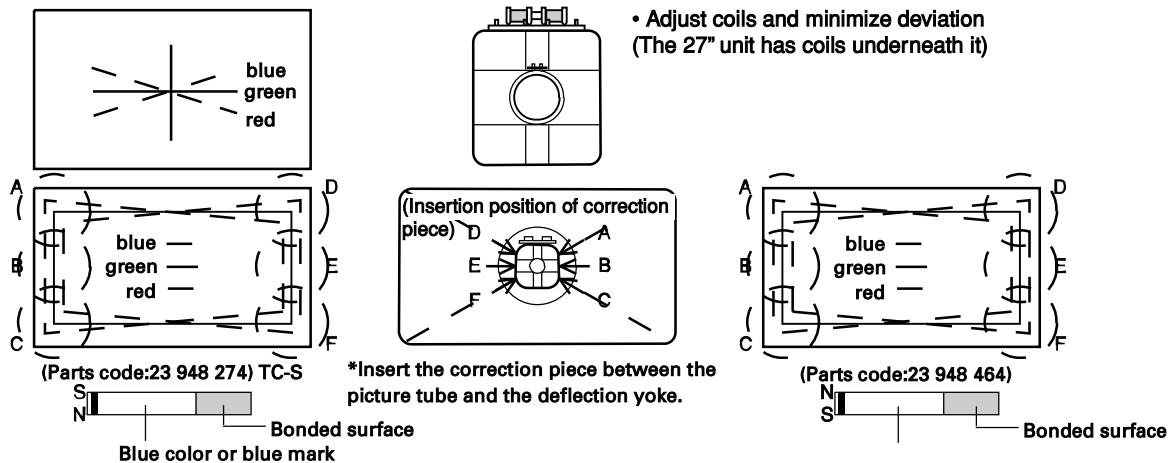
- (1) Receive the white crosshatch or dot pattern from the service signal generator.
- (2) Use the 2 pieces of main 4-pole magnets of P/C magnets, change the open angle, and align the red and blue vertical lines on the screen center.
- (3) Freeze the open angle of the main 4-pole magnets, turn them simultaneously, and align the horizontal lines.
- (4) Take the same steps for items (2) and (3) above and align red/blue with green on the screen center using two 6-pole magnets.

(5) Adjust the sub-4-pole magnets only in case there is any deviation of Xv bow-shaped convergence. (To be usually set at the initial position)  
Align both sides with the sub-4-pole magnets and minimize the deviation of blue and red with the main 4-pole magnets.

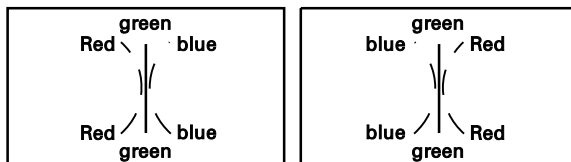


### ■ CIRCUMFERENCE CONVERGENCE:

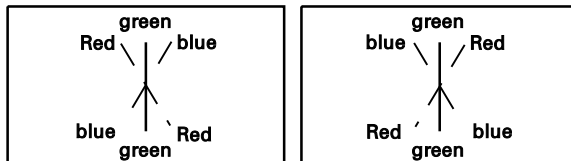
\* Perform correction in the following manner.



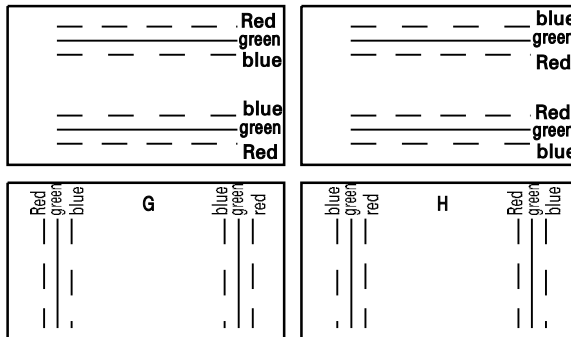
Adjust VR 1 and minimize the deviation of YH. \*Only 27", 30" and 32".



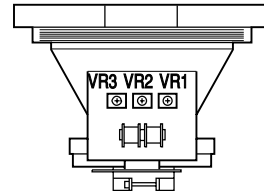
Adjust VR 2 (YHC) and minimize the deviation of YH.



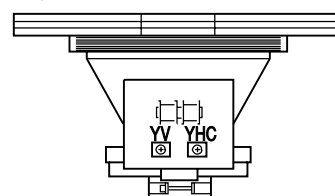
Adjust VR 3 (YV) and minimize the deviation of YV.



■ 30", 27", 32"



■ 34"



27" (Part No. 23 947 371)

32", 30" (Part No. 23 947 121)

34" (Part No. 23 993 080)

Perform correction by inserting the correction piece into the clearance of terminal board coils of the deflection yoke.

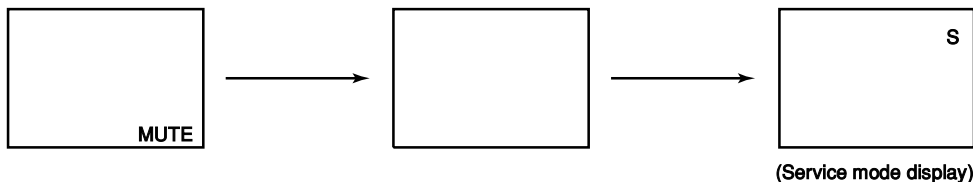
**Note:**

Perform insertion by turning the metal side to the terminal board side of the deflection yoke.

## SERVICE MODE

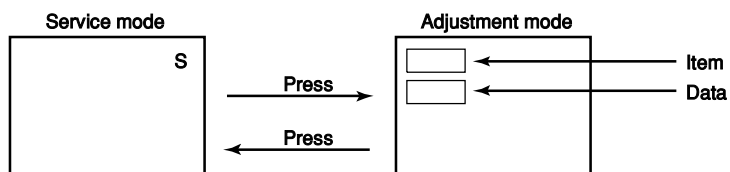
### 1. ENTERING TO SERVICE MODE

- 1) Press MUTE button once on Remote Control.
- 2) Press MUTE button again to keep pressing.
- 3) While pressing the MUTE button, press MENU button on TV set.



### 2. DISPLAYING THE ADJUSTMENT MENU

- 1) Press MENU button on TV.



### 3. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

|                                             |                                   |
|---------------------------------------------|-----------------------------------|
| A single horizontal line ON/OFF:            | TV (ANT)/VIDEO button (on TV)     |
| Test signal selection :                     | TV (ANT)/VIDEO button (on Remote) |
| Selection of the adjustment items :         | Channel ▲/▼ (on TV or Remote)     |
| Change of the data value :                  | Volume ◀/▶ (on TV or Remote)      |
| Adjustment menu mode ON/OFF :               | MENU button (on TV)               |
| Initialization of the memory (QA02) :       | RECALL+Channel (▲) button on TV   |
| Initialization of the self diagnostic data: | RECALL+Channel (▼) button on TV   |
|                                             |                                   |
| "RCUT" selection :                          | 1 button                          |
| "GCUT" selection :                          | 2 button                          |
| "BCUT" selection :                          | 3 button                          |
| "CNTX" selection :                          | 4 button                          |
| "COLC" selection :                          | 5 button                          |
| "TNTC" selection :                          | 6 button                          |
| Test audio signal ON/OFF (1kHz):            | 8 button                          |
| Self diagnostic display ON/OFF :            | 9 button                          |

#### 4. SELECTING THE ADJUSTING ITEMS

- 1) Every pressing of CHANNEL ▲ button in the service mode changes the adjustment items in the order of table-2. (▼ button for reverse order)

Refer to table-2 for preset data of adjustment mode.  
(See SETTING & ADJUSTING DATA on page 13)

#### 5. ADJUSTING THE DATA

- 1) Pressing of VOLUME ◀/▶ button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

#### 6. EXIT FROM SERVICE MODE

- 1) Pressing POWER button to turn off the TV once.

#### ■ INITIALIZATION OF MEMORY DATA OF QA02

After replacing QA02, the following initialization is required.

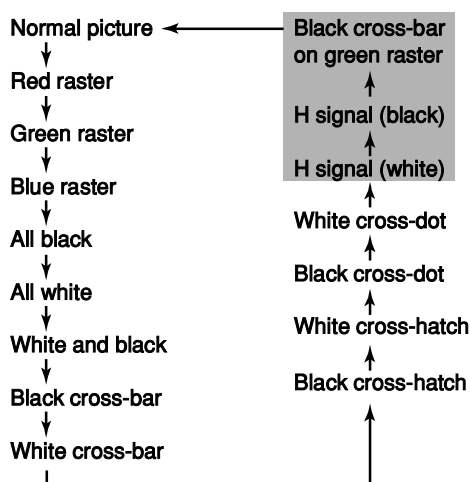
1. Enter the service mode, then select any register item.
2. Press and hold the CALL button on the Remote, then press the CHANNEL ▲ button on the TV. The initialization of QA02 has been completed.
3. Check the picture carefully. If necessary, adjust any adjustment item above.

Perform "Auto search Memory" on the owner's manual.

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

#### 7. TEST SIGNAL SELECTION

- 1) Every pressing of TV/VIDEO button on the Remote Control in the Service mode changes the built-in test patterns on screen in the following order.



- 2) Press "8" button while any built-in test pattern to on the screen to output the 1 kHz sound. Press the button again to cut off the sound.

Note: If the video cable is connected to the VIDEO1 INPUT jack, the built-in pattern signals are not displayed.

| Signals                                                                                                                                                 | Picture |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| <ul style="list-style-type: none"> <li>• Red raster</li> <li>• Green raster</li> <li>• Blue raster</li> <li>• All Black</li> <li>• All White</li> </ul> |         |
| <ul style="list-style-type: none"> <li>• Black &amp; White</li> </ul>                                                                                   |         |
| <ul style="list-style-type: none"> <li>• Black cross-bar</li> <li>• White cross-bar</li> <li>• Black cross-bar on green raster</li> </ul>               |         |
| <ul style="list-style-type: none"> <li>• Black cross-hatch</li> <li>• White cross-hatch</li> </ul>                                                      |         |
| <ul style="list-style-type: none"> <li>• Black cross-dot</li> <li>• White cross-dot</li> </ul>                                                          |         |
| <ul style="list-style-type: none"> <li>• H signal (white)</li> <li>• H signal (black)</li> </ul>                                                        |         |

\* The signals marked with ■ are not usable to display in the Test signal for some model.

## 8. SELF DIAGNOSTIC FUNCTION

- 1) Press "9" button on Remote Control during display of adjustment menu in the service mode.  
The diagnosis will begin to check if interface among IC's are executed properly.
- 2) During diagnosis, the following displays are shown.

|   |                                  |
|---|----------------------------------|
|   | SELF CHECK                       |
| ① | NO. 23*****                      |
| ② | POWER : 000                      |
| ③ | BUS LINE : OK                    |
| ④ | BUS CONT : OK                    |
| ⑤ | BLOCK : MAIN                     |
| ⑥ | SET ID : 03                      |
| ⑦ | E2P VER : 02                     |
| ⑧ | OPT0 : 20H OPT1 : 84H OPT2 : 01H |

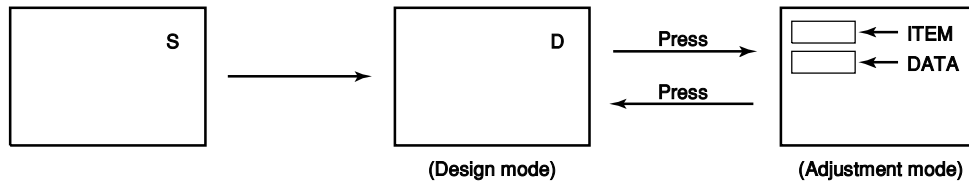
- ① Part number of microprocessor (QA01)
- ② Operation number of protection circuit (current limiter) . . . "000" is normal.
- ③ BUS line check
  - "OK" . . . . . Normal
  - "SCL-GND" or "NG" . . . . . SCL-GND short circuit
  - "SDA-GND" or "NG" . . . . . SDA-GND short circuit
  - "SCL-SDA" or "NG" . . . . . SCL-SDA short circuit
- ④ BUS line ACK (acknowledge) check
  - "OK" . . . . . Normal
  - Display of Location Number . . . NG
  - (Display example)
  - "QA02 NG", "H001 NG", "Q501 NG" etc.
  - Note: The indication of failure place is only one place though failure places are plural. When repair of a failure place finishes, the next failure place is indicated. (The order of priority of indication is left side.)
- ⑤ SYNC signal available/not available (available: green, not available: red)
- ⑥ SET ID
- ⑦ Version of E2P
- ⑧ OPT data

\* The item marked with ■ are not usable to display in the SELF DIAGNOSTIC FUNCTION for some model.

## DESIGN MODE

### 1. ENTERING TO DESIGN MODE

- 1) Select the Service mode.
- 2) While pressing RECALL button on Remote and press MENU button on TV.
- 3) Press MENU button on TV.



When QA02 is initialized, items "OPT0" and "OPT1" of DESIGN MODE are set to the data of the representative model of this chassis family.

Therefore, because ON-SCREEN specification remains in the state of the representative of model. This model is required to reset the data of items "OPT0" and "OPT1".

### 2. SELECTING THE ADJUSTING ITEMS

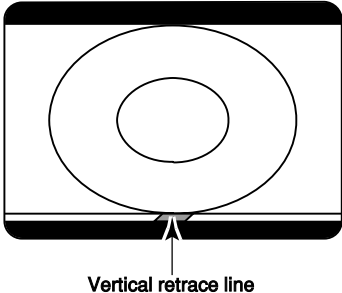
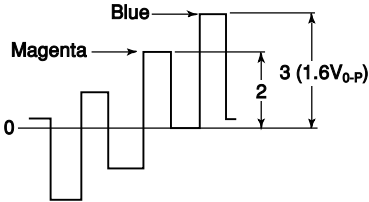
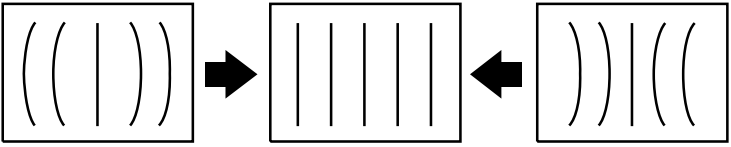
Every pressing of CHANNEL ▼ button in the design mode changes the adjustment items in the order of table-3. (▲ button for reverse order)

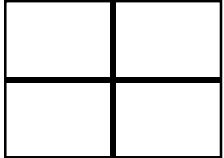
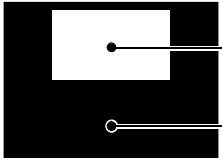
Refer to table-3 for data of design mode.  
(See SETTING & ADJUSTING DATA on page 13)

### 3. ADJUSTING THE DATA

Pressing of VOLUME ▲ or ▼ button will change the value of data.

## ELECTRICAL ADJUSTMENT

| ITEM                                | ADJUSTMENT PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FOCUS VR ADJ                        | <ol style="list-style-type: none"> <li>1. Enter the service mode, then select any register item.</li> <li>2. Press the TV/VIDEO button on the Remote until the black cross-bar pattern appears on the screen.</li> <li>3. Adjust the FOCUS control (on T461) for well defined scanning lines on the picture screen.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| SUB-BRIGHTNESS (BRTC)               | <ol style="list-style-type: none"> <li>1. Constrict the picture height until the vertical retrace line appears adjusting the item HIT (HEIGHT).</li> <li>2. Adjust the CONTRAST control to the minimum.</li> <li>3. Call up the adjustment mode display, then select the item <b>BRTC</b>.</li> <li>4. Press the VOLUME ▲ or ▼ button so the belt of vertical retrace line just disappear.</li> <li>5. Adjust the CONTRAST control for the desired contrast.</li> <li>6. Perform the HEIGHT adjustment.</li> </ol>                                                                                                                                                                                                                              |
| SUB-COLOR (SCOL)<br>SUB-TINT (TNTC) | <ol style="list-style-type: none"> <li>1. Receive color-bar signal from color-bar generator.</li> <li>2. Press the RESET button.</li> <li>3. Connect oscilloscope to TP501 on SIGNAL board.</li> <li>4. Adjust the CONTRAST control to the minimum.</li> <li>5. Call up the adjustment mode display, then select the item <b>TNTC</b>.</li> <li>6. Adjust the SUB-TINT by pressing the VOLUME ▲ or ▼ button to obtain a blue bar to magenta bar ratio of 3:2 as shown.</li> <li>7. Press the RESET button.</li> <li>8. Select the item <b>SCOL</b>.</li> <li>9. Adjust the SUB-COLOR by pressing the VOLUME ▲ or ▼ button to achieve 1.6V<sub>0-P</sub> of a blue bar on scope.</li> <li>10. Check the picture with off-air signal.</li> </ol>  |
| WIDTH (WID)                         | <ol style="list-style-type: none"> <li>1. Call up the adjustment mode display, then select the item <b>WID</b>.</li> <li>2. Press the VOLUME ▲ or ▼ button to get the picture so the left and right edges of raster begins to lack.</li> <li>3. Press the VOLUME ▲ or ▼ button to advance the data by 7 steps.</li> </ol> <p>Note : Check the horizontal picture position is correct.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| E-W PARABOLA (DPC) (PARA)           | <ol style="list-style-type: none"> <li>1. Call up the adjustment mode display, then select the item <b>PARA</b>.</li> <li>2. Press the TV/VIDEO button on Remote until the cross-hatch pattern appears on the screen.</li> <li>3. Press the VOLUME ▲ or ▼ button to make vertical lines straight as shown below.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                    |

| ITEM                                                         | ADJUSTMENT PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HORIZONTAL POSITION (HPOS)<br>VERTICAL POSITION (VPOS)       | <ol style="list-style-type: none"> <li>1. Call up the adjustment mode display, then select the item <b>HPOS</b> or <b>VPOS</b>.</li> <li>2. Press the TV/VIDEO button on Remote until the white cross-bar or black cross-bar pattern appears on the screen.</li> <li>3. Adjust the HORIZONTAL and VERTICAL position alternately by pressing the VOLUME ▲ or ▼ button for proper picture position.</li> <li>4. Check the picture with off-air signal.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| HEIGHT (HIT)                                                 | <ol style="list-style-type: none"> <li>1. Call up the adjustment mode display, then select the item <b>HIT</b>.</li> <li>2. Press the VOLUME ▲ or ▼ button to get the picture so the top of raster begins to lack.</li> <li>3. Press the VOLUME ▲ button to advance the data by 9 steps.</li> </ol> <p>Note : Check the vertical picture position is correct.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| WHITE BALANCE (RCUT)<br>(GCUT)<br>(BCUT)<br>(GDRV)<br>(BDRV) | <ol style="list-style-type: none"> <li>1. Adjust the CONTRAST control to the center, and BRIGHTNESS control to the maximum.</li> <li>2. Call up the adjustment mode display, and press the TV/VIDEO button on Remote until the white and black pattern appears on the screen.</li> <li>3. Adjust the following items with the CHANNEL ▲/▼ and VOLUME ▲/▼ buttons. <ul style="list-style-type: none"> <li>Item : RCUT → Data : 40H</li> <li>Item : GCUT → Data : 40H</li> <li>Item : BCUT → Data : 40H</li> <li>Item : GDRV → Data : 40H</li> <li>Item : BDRV → Data : 40H</li> </ul> </li> <li>4. Press the TV/VIDEO button on TV to display a single horizontal line on the screen.</li> <li>5. Turn the SCREEN control (FBT) fully counterclockwise and gradually rotate clockwise until the first horizontal line appears slightly on the screen.</li> <li>6. Press the TV/VIDEO button to display the normal picture.</li> <li>7. Adjust the remaining two "CUT" items (CHANNEL ▲/▼ → TV/VIDEO → VOLUME ▲/▼ in order) to obtain the slightly lighted horizontal line in the same levels of three (red, green, blue) colors. The line should be white if the adjustments are proper.</li> </ol>  <p>Bright area<br/>Adjust "GDRV" or "BDRV" to be white.</p> <p>Dark area<br/>Fine adjust "RCUT", "GCUT" or "BCUT" to be black.</p> |

## MTS ADJUSTMENT

| No. | ITEM                     | INPUT SIGNAL                                                                                     | ADJUSTMENT PROCEDURE                                                                                                                                                                                                                                                                                                                                        |
|-----|--------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | ATTENUATOR (ATT)         | <ul style="list-style-type: none"> <li>• 1kHz 30% mod. → ANT terminal</li> </ul>                 | <ol style="list-style-type: none"> <li>1. Display item <b>ATT</b> on screen.</li> <li>2. Connect a millivolt meter to TV OUT L of Monitor output terminal to observe the voltage.</li> <li>3. Change data by VOLUME ▲/▼ buttons so that the reading of meter becomes value as close as 150mVrms.</li> </ol>                                                 |
| 2   | STEREO SEPARATION (WBAN) | <ul style="list-style-type: none"> <li>• STEREO 300Hz (30% mod.) R-channel only → ANT</li> </ul> | <ol style="list-style-type: none"> <li>1. Display item <b>WBAN</b> on screen.</li> <li>2. Observe the waveform of TV OUT L of Monitor output terminal by an oscilloscope.</li> <li>3. Change data by VOLUME ▲/▼ buttons so that 300Hz element on scope becomes minimum.</li> </ol>                                                                          |
|     | (SPEC)                   | <ul style="list-style-type: none"> <li>• STEREO 3kHz (30% mod.) R-channel only → ANT</li> </ul>  | <ol style="list-style-type: none"> <li>1. Display item <b>SPEC</b> on screen.</li> <li>2. Observe the waveform of TV OUT L of Monitor output terminal by an oscilloscope.</li> <li>3. Change data by VOLUME ▲/▼ buttons so that 3KHz element on scope becomes minimum.</li> </ol> <p>Make the above adjustments so that the separation becomes optimum.</p> |

## CIRCUIT CHECKS

### HIGH VOLTAGE CHECK

**CAUTION:** There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST controls to minimum (zero beam current).
3. High voltage must be measured below (B) kV.

Refer to table-1 for high voltage (B).  
(See SETTING & ADJUSTING DATA on page 13)

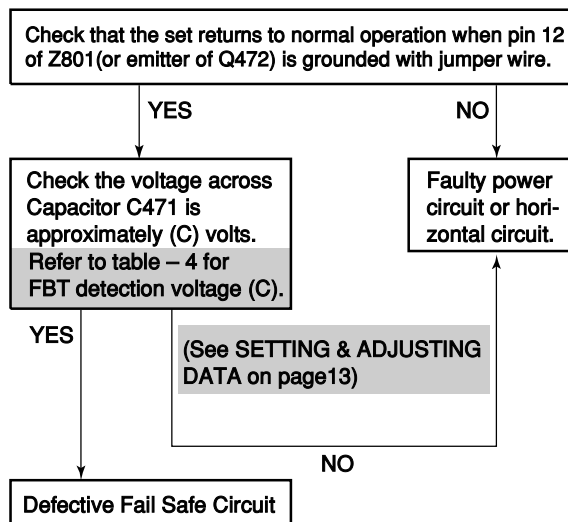
4. Vary the BRIGHTNESS control to both extremes to be sure the high voltage does not exceed the limit under any conditions.

### FS CIRCUIT CHECK

The Fail Safe (FS) circuit check is indispensable for the final check in servicing. Checking should be done following the steps below.

1. Turn the receiver on and press the RESET button.
2. Temporarily short TP-(R) and TP-(X) with a jumper wire. Raster and sound will disappear.
3. The receiver must remain in this state even after removing the jumper wire. This is the evidence that the FS circuit is functioning properly.
4. To obtain a picture again, temporarily turn the receiver off and allow the FS circuit more than 5 seconds to reset. Then turn the power switch on to produce a normal picture.

### Troubleshooting Guide for Fail Safe Circuit



## CHAPTER 2 SPECIFIC INFORMATION

### SETTING & ADJUSTING DATA

#### 【 SAFETY INSTRUCTIONS 】

|                            |     |        |
|----------------------------|-----|--------|
|                            |     | 36"    |
| HIGH VOLTAGE AT ZERO BEAM: | (A) | 32.0kV |
| MAX HIGH VOLTAGE:          | (B) | 34.0kV |

Table-1

#### 【 SERVICE MODE 】

##### ADJUSTING ITEMS AND DATAS IN THE SERVICE MODE:

| Item | Name of adjustment | Preset | Data | Item | Name of adjustment | Preset | Data |
|------|--------------------|--------|------|------|--------------------|--------|------|
| RCUT | R CUTOFF           | 40H    | ←    | WBAN | STEREO SEPARATION  | 20H    | 16H  |
| GCUT | G CUTOFF           | 40H    | ←    | HPOS | HORIZ. POSITION    | 16H    | 19H  |
| BCUT | B CUTOFF           | 40H    | ←    | VPOS | VERT. POSITION     | 03H    | ←    |
| GDRV | G DRIVE            | 40H    | ←    | HIT  | HEIGHT             | 26H    | 1CH  |
| BDRV | B DRIVE            | 40H    | ←    | LIN  | V-LINEARITY        | 07H    | ←    |
| SCNT | SUB-CONTRAST       | 0AH    | 09H  | VSC  | V-S CORRECTION     | 02H    | 03H  |
| BRTC | SUB-BRIGHT         | 40H    | 43H  | WID  | PICTURE WIDTH      | 35H    | 25H  |
| COLC | SUB-COLOR          | 3AH    | 3DH  | DPC  | E-W PARABOLA (DPC) | 17H    | 13H  |
| TNTC | SUB-TINT           | 44H    | 48H  | CNR  | E-W CORNER         | 09H    | 03H  |
| SAVC | SAP VCO            | 20H    | 25H  | TRAP | TRAPEZIUM          | 08H    | 07H  |
| ATT  | ATTENUATOR         | 20H    | 0FH  | VPS  | V-SHIFT            | 01H    | ←    |
| STVC | STEREO VCO         | 20H    | 21H  | VCP  | V-COMPENSATION     | 03H    | ←    |
| STRF | STEREO FILTER      | 20H    | 21H  | HCP  | H-COMPENSATION     | 00H    | ←    |
| SPEC | SPECTRAL           | 20H    | 1DH  | VFC  | V-F CORRECTION     | 0FH    | ←    |

Table-2

#### 【 DESIGN MODE 】

##### ADJUSTING ITEMS AND DATAS IN THE DESIGN MODE:

| Item | Name of adjustment | Preset Data | Data | Remarks |
|------|--------------------|-------------|------|---------|
| OPT0 | OPTION0            | 20H         | 20H  |         |
| OPT1 | OPTION1            | 84H         | 84H  |         |
| OPT2 | OPTION2            | 01H         | 01H  |         |

Table-3

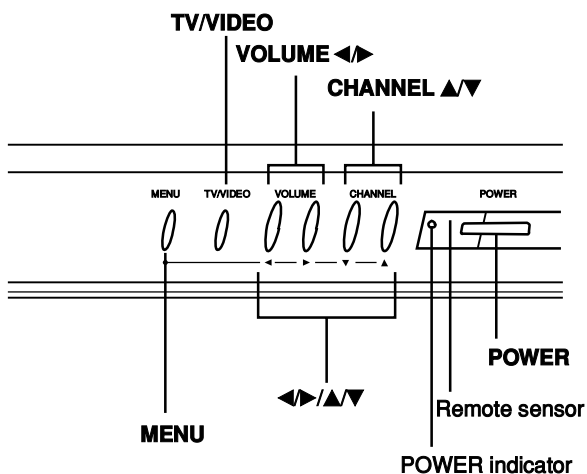
#### 【 CIRCUIT CHECKS 】

|                       |     |        |
|-----------------------|-----|--------|
| FBT DETECTION VOLTAGE | (C) | 22.3 V |
|-----------------------|-----|--------|

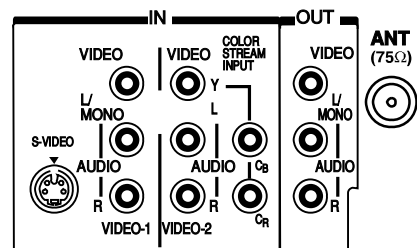
Table-4

## LOCATION OF CONTROLS

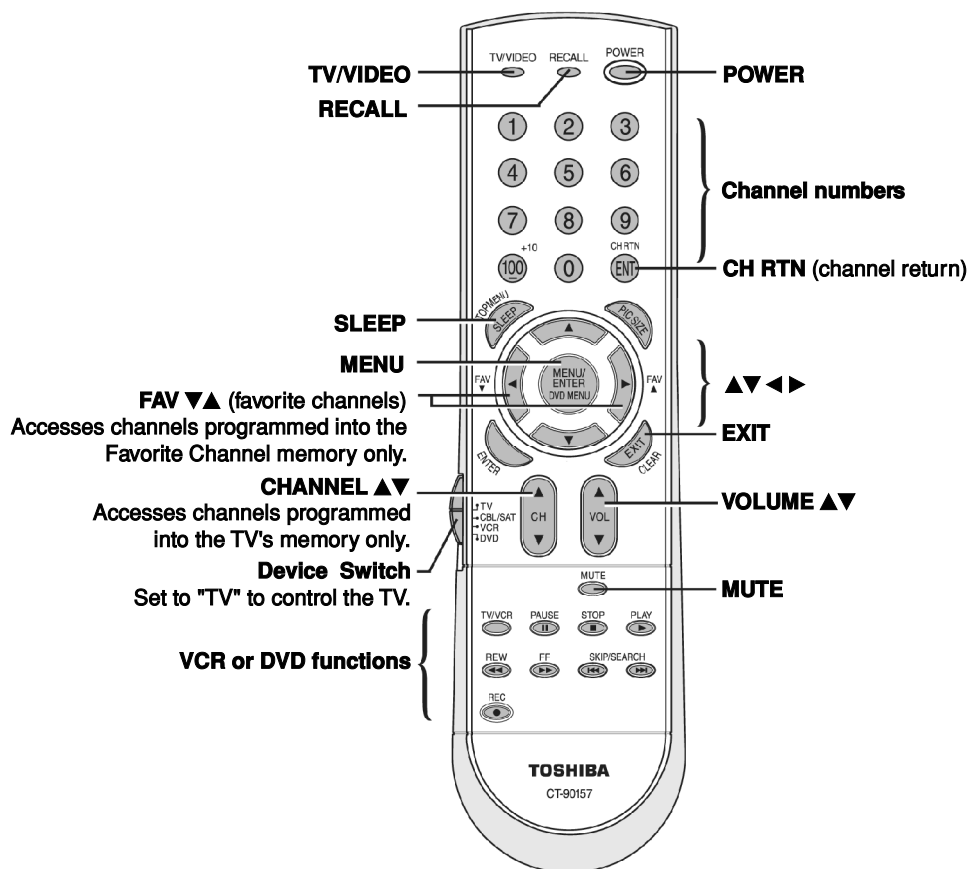
### Front Control



### Back Term.



### Remote Control



## PROGRAMMING CHANNELS INTO THE TV'S MEMORY

When you press **CHANNEL ▲ ▼** on the TV or remote control, the TV stops only on the channels stored in the TV's memory.

**Note:** To tune the TV to a channel not programmed into the memory, use the **CHANNEL NUMBERS** on the remote control. Follow the steps below to program channels into the TV's memory.

### Programming channels automatically

Your TV can automatically detect all active channels in your area and store them in the TV's memory. After the channels are stored automatically, you can manually add or erase individual channels.

**To program channels automatically:**

- 1** Press **MENU**.
- 2** Press **◀** or **▶** to highlight the SET UP menu.
- 3** Press **▲** or **▼** to highlight TV/CABLE.
- 4** Press **◀** or **▶** to highlight TV (if you use an antenna) or CABLE (if you use cable).
- 5** Press **▼** to highlight CH PROGRAM.
- 6** Press **◀** or **▶** to start automatic channel programming ("CH PROGRAM" displays on-screen). The TV automatically cycles through every TV or cable channel (depending on which you selected), and stores all active channels in the TV's memory.
- 7** When automatic channel programming is complete, the message "CH Programming Completed" appears.
- 8** Press **CHANNEL ▲ ▼** to view the programmed channels.

### Adding and erasing channels manually

After you have automatically programmed the channels into the TV's memory, you can manually add and erase individual channels.

**To add a channel to or erase a channels from the TV's memory:**

- 1** Tune the TV to the channel you want to add or erase. If you are adding a channel, you will need to use the **CHANNEL NUMBERS** to select the channel.
- 2** Press **MENU**.
- 3** Press **◀** or **▶** to highlight the SET UP menu.
- 4** Press **▲** or **▼** to highlight ADD/ERASE.
- 5** Press **◀** or **▶** to highlight ADD or ERASE, whichever function you want to perform.
- 6** Press **MENU**.
- 7** Repeat steps 1-6 for other channels you want to add or erase, or press **EXIT** to return to normal TV viewing.

### Changing channels:

**To change to the next programmed channel:**  
Press **CHANNEL ▲ ▼**.

**To change to a specific channel (programmed or unprogrammed):**

Press the **CHANNEL NUMBERS** (0-9 and 100).

**Note:** For channels 100 and higher, press the 100 button, and then the next two channel numbers (for example, to select channel 100, press 100, 0, 0; to select channel 125, press 100, 2, 5).

## CHASSIS AND CABINET REPLACEMENT PARTS LIST

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

**CAUTION:** The international hazard symbols " $\triangle$ " in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE. Do not degrade the safety of the receiver through improper servicing.

**NOTICE:**

- The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.
- The PC board assembly with \* mark is no longer available after the end of the production.

**Model : 36A43**

Capacitors ..... CD : Ceramic Disk PF : Plastic Film EL : Electrolytic  
Resistors ..... CF : Carbon Film CC : Carbon Composition MF : Metal Film  
OMF : Oxide Metal Film VR : Variable Resistor FR : Fusible Resistor  
(All CD and PF capacitors are  $\pm 5\%$ , 50V and all resistors,  $\pm 5\%$ , 1/6W unless otherwise noted.)

| Location No.      | Parts No. | Description                     |
|-------------------|-----------|---------------------------------|
| <b>CAPACITORS</b> |           |                                 |
| C102              | 24792471  | ELECTROLYTIC, 6.3V 470UF M      |
| C105              | 24212102  | CERAMIC DISC, 50V B 1000PF K    |
| C106              | 24797479  | ELECTROLYTIC, 50V 4.7UF M       |
| C107              | 24763221  | ELECTROLYTIC, 16V 220UF M       |
| C201              | 24539104  | PLASTIC FILM, 50V 0.1UF J       |
| C204              | 24797010  | ELECTROLYTIC, 50V 1UF M         |
| C205              | 24794100  | ELECTROLYTIC, 16V 10UF M        |
| C216              | 24794100  | ELECTROLYTIC, 16V 10UF M        |
| C220              | 24539474  | PLASTIC FILM, 50V 0.47UF J      |
| C221              | 24109103  | CERAMIC CHIP, 50V B 0.01UF K    |
| C222              | 24109103  | CERAMIC CHIP, 50V B 0.01UF K    |
| C223              | 24109103  | CERAMIC CHIP, 50V B 0.01UF K    |
| C224              | 24539104  | PLASTIC FILM, 50V 0.1UF J       |
| C225              | 24539104  | PLASTIC FILM, 50V 0.1UF J       |
| C226              | 24539104  | PLASTIC FILM, 50V 0.1UF J       |
| C245              | 24206108  | ELECTROLYTIC, 50V 0.1UF M 7L 3A |
| C261              | 24539104  | PLASTIC FILM, 50V 0.1UF J       |
| C262              | 24539104  | PLASTIC FILM, 50V 0.1UF J       |
| C263              | 24539104  | PLASTIC FILM, 50V 0.1UF J       |
| C271              | 24109561  | CERAMIC CHIP, 50V B 560PF K     |
| C305              | 24617912  | ELECTROLYTIC, 50V 2.2UF K 3A LI |
| C306              | 24764222  | ELECTROLYTIC, 25V 2200UF M      |
| C307              | 24082272  | PLASTIC FILM, 100V 0.047UF J    |
| C308              | 24668221  | ELECTROLYTIC, 35V 220UF M 3A    |
| C309              | 24109102  | CERAMIC CHIP, 50V B 1000PF K    |
| C310              | 24766102  | ELECTROLYTIC, 50V 1000UF M      |
| C311              | 24214102  | CERAMIC DISC, 500V B 1000PF K   |
| C313              | 24082057  | PLASTIC FILM, 100V 0.22UF J     |
| C314              | 24591222  | PLASTIC FILM, 50V 2200PF J      |
| C317              | 24214471  | CERAMIC DISC, 500V B 470PF K    |
| C318              | 24109102  | CERAMIC CHIP, 50V B 1000PF K    |
| C319              | 24109102  | CERAMIC CHIP, 50V B 1000PF K    |
| C320              | 24797101  | ELECTROLYTIC, 50V 2200PF J      |
| C323              | 24539474  | PLASTIC FILM, 50V 0.47UF J      |
| C325              | 24539683  | PLASTIC FILM, 50V 0.068UF J     |
| C326              | 24539104  | PLASTIC FILM, 50V 0.1UF J       |
| C327              | 24617915  | ELECTROLYTIC, 50V 1UF K 3A LI   |
| C337              | 24797229  | ELECTROLYTIC, 50V 2.2UF M       |

| Location No. | Parts No. | Description                      |
|--------------|-----------|----------------------------------|
| C370         | 24794101  | ELECTROLYTIC, 16V 100UF M        |
| C371         | 24794100  | ELECTROLYTIC, 16V 10UF M         |
| C403         | 24539103  | PLASTIC FILM, 50V 0.01UF J       |
| C404         | 24797010  | ELECTROLYTIC, 50V 1UF M          |
| C407         | 24539104  | PLASTIC FILM, 50V 0.1UF J        |
| C412         | 24214472  | CERAMIC DISC, 500V B 4700PF K    |
| C413         | 24214821  | CERAMIC DISC, 500V B 820PF K     |
| C415         | 24539224  | PLASTIC FILM, 50V 0.22UF J       |
| C416         | 24678010  | ELECTROLYTIC, 200V 1UF M 3A      |
| C417         | 24214331  | CERAMIC DISC, 500V B 330PF K     |
| C421         | 24539334  | PLASTIC FILM, 50V 0.33UF J       |
| C430         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K     |
| C431         | 24794101  | ELECTROLYTIC, 16V 100UF M        |
| C438         | 24092344  | CERAMIC DISC, 2KV 820PF K        |
| C439         | 24503125  | PLASTIC FILM, 400V 0.075UF J     |
| C442         | 24503305  | PLASTIC FILM CF92 T 315V R62UF J |
| C443         | 24503272  | PLASTIC FILM, 1500VH 7200PF H    |
| C444         | 24503194  | PLASTIC FILM, 1500VH 0.01UF H    |
| C445         | 24082050  | PLASTIC FILM, 100V 0.056UF J     |
| C446         | 24679100  | ELECTROLYTIC, 250V 10UF M 3A     |
| C448         | 24073118  | ELECTROLYTIC, 160V 33UF M        |
| C449         | 24794102  | ELECTROLYTIC, 16V 1000UF M       |
| C453         | 24539334  | PLASTIC FILM, 50V 0.33UF J       |
| C457         | 24591222  | PLASTIC FILM, 50V 2200PF J       |
| C463         | 24212152  | CERAMIC DISC, 50V B 1500PF K     |
| C464         | 24640872  | ELECTROLYTIC, 100V 10UF M 3A     |
| C466         | 24567104  | PLASTIC FILM, 50V 0.1UF J        |
| C467         | 24503160  | PLASTIC FILM, 630V 0.043UF J     |
| C471         | 24797479  | ELECTROLYTIC, 50V 4.7UF M        |
| C474         | 24794100  | ELECTROLYTIC, 16V 10UF M         |
| C477         | 24539104  | PLASTIC FILM, 50V 0.1UF J        |
| C478         | 24539563  | PLASTIC FILM, 50V 0.056UF J      |
| C480         | 24747220  | ELECTROLYTIC, 50V 22UF M 7L 3A   |
| C481         | 24539474  | PLASTIC FILM, 50V 0.47UF J       |
| C482         | 24797478  | ELECTROLYTIC, 50V 0.47UF M       |
| C483         | 24206108  | ELECTROLYTIC, 50V 0.1UF M 7L 3A  |
| C499         | 24212102  | CERAMIC DISC, 50V B 1000PF K     |
| C501         | 24109102  | CERAMIC CHIP, 50V B 1000PF K     |
| C504         | 24591222  | PLASTIC FILM, 50V 2200PF J       |

| Location No. | Parts No. | Description                      |
|--------------|-----------|----------------------------------|
| C505         | 24105130  | CERAMIC CHIP, 50V CH 13PF J      |
| C510         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K     |
| C511         | 24794101  | ELECTROLYTIC, 16V 100UF M        |
| C512         | 24206228  | ELECTROLYTIC, 50V 0.22UF M 7L 3A |
| C582         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K     |
| C583         | 24762471  | ELECTROLYTIC, 10V 470UF M        |
| C612         | 24794470  | ELECTROLYTIC, 16V 47UF M         |
| C613         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K     |
| C661         | 24212102  | CERAMIC DISC, 50V B 1000PF K     |
| C662         | 24212102  | CERAMIC DISC, 50V B 1000PF K     |
| C663         | 24794100  | ELECTROLYTIC, 16V 10UF M         |
| C664         | 24796101  | ELECTROLYTIC, 35V 100UF M        |
| C671         | 24667470  | ELECTROLYTIC, 25V 47UF M 3A      |
| C672         | 24667470  | ELECTROLYTIC, 25V 47UF M 3A      |
| C673         | 24797229  | ELECTROLYTIC, 50V 2.2UF M        |
| C676         | 24503041  | PLASTIC FILM, 63V 0.1UF J        |
| C677         | 24503041  | PLASTIC FILM, 63V 0.1UF J        |
| C678         | 24797229  | ELECTROLYTIC, 50V 2.2UF M        |
| C679         | 24667470  | ELECTROLYTIC, 25V 47UF M 3A      |
| C681         | 24795102  | ELECTROLYTIC, 25V 1000UF M       |
| C683         | 24795102  | ELECTROLYTIC, 25V 1000UF M       |
| △ C801       | 24503002  | PLASTIC FILM, AC275V 0.22UF M    |
| △ C802       | 24503001  | PLASTIC FILM, AC275V 0.1UF M     |
| C805         | 24092623  | CERAMIC DISC, 250V F 0.01UF Z    |
| C806         | 24092623  | CERAMIC DISC, 250V F 0.01UF Z    |
| C808         | 24797470  | ELECTROLYTIC, 50V 47UF M         |
| C810         | 24086061  | ELECTROLYTIC, 200V 470UF M 3F    |
| △ C815       | 24092583  | CERAMIC DISC, AC250V E 2200PF M  |
| C817         | 24092339  | CERAMIC DISC, 2KV 330PF K        |
| C818         | 24082402  | PLASTIC FILM, 1250VH 2200PF H    |
| C819         | 24795221  | ELECTROLYTIC, 25V 220UF M        |
| C821         | 24214471  | CERAMIC DISC, 500V B 470PF K     |
| △ C822       | 24092583  | CERAMIC DISC, AC250V E 2200PF M  |
| △ C823       | 24092583  | CERAMIC DISC, AC250V E 2200PF M  |
| C825         | 24212471  | CERAMIC DISC, 50V B 470PF K      |
| C829         | 24590182  | PLASTIC FILM, 50V 1800PF J       |
| C832         | 24539334  | PLASTIC FILM, 50V 0.33UF J       |
| C840         | 24797010  | ELECTROLYTIC, 50V 1UF M          |
| C842         | 24792101  | ELECTROLYTIC, 6.3V 100UF M       |
| C884         | 24640018  | ELECTROLYTIC, 160V 220UF         |
| C885         | 24214471  | CERAMIC DISC, 500V B 470PF K     |
| C889         | 24796222  | ELECTROLYTIC, 35V 2200UF M       |
| C893         | 24092339  | CERAMIC DISC, 2KV 330PF K        |
| C898         | 24539474  | PLASTIC FILM, 50V 0.47UF J       |
| C902         | 24092345  | CERAMIC DISC, 2KV 1000PF K       |
| C904         | 24436391  | CERAMIC DISC, 50V SL 390PF J     |
| C905         | 24436391  | CERAMIC DISC, 50V SL 390PF J     |
| C906         | 24436391  | CERAMIC DISC, 50V SL 390PF J     |
| C909         | 24679220  | ELECTROLYTIC, 250V 22UF M 3A     |
| C910         | 24797478  | ELECTROLYTIC, 50V 0.47UF M       |
| C911         | 24794100  | ELECTROLYTIC, 16V 10UF M         |
| C912         | 24763471  | ELECTROLYTIC, 16V 470UF M        |
| C913         | 24794100  | ELECTROLYTIC, 16V 10UF M         |
| C914         | 24232103  | CERAMIC DISC, 50V F 0.01UF Z     |
| C920         | 24214101  | CERAMIC DISC, 500V B 100PF K     |
| CA32         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z      |
| CA37         | 24105101  | CERAMIC CHIP, 50V CH 100PF J     |
| CA38         | 24105101  | CERAMIC CHIP, 50V CH 100PF J     |
| CA42         | 24794100  | ELECTROLYTIC, 16V 10UF M         |
| CA43         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K     |
| CA44         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K     |
| CA68         | 24794100  | ELECTROLYTIC, 16V 10UF M         |
| CA69         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K     |
| CB01         | 24794470  | ELECTROLYTIC, 16V 47UF M         |
| CB48         | 24105101  | CERAMIC CHIP, 50V CH 100PF J     |

| Location No. | Parts No. | Description                             |
|--------------|-----------|-----------------------------------------|
| CB60         | 24085944  | ELECTROLYTIC, NONPOLAR, 50V 2.2UF M 11L |
| CB61         | 24591102  | PLASTIC FILM, 50V 1000PF J              |
| CB62         | 24109561  | CERAMIC CHIP, 50V B 560PF K             |
| CB63         | 24109122  | CERAMIC CHIP, 50V B 1200PF K            |
| CB64         | 24763471  | ELECTROLYTIC, 16V 470UF M               |
| CB65         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z             |
| CG01         | 24794101  | ELECTROLYTIC, 16V 100UF M               |
| CG02         | 24794220  | ELECTROLYTIC, 16V 22UF M                |
| CG03         | 24539104  | PLASTIC FILM, 50V 0.1UF J               |
| CG04         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K            |
| CG06         | 24797479  | ELECTROLYTIC, 50V 4.7UF M               |
| CG07         | 24797229  | ELECTROLYTIC, 50V 2.2UF M               |
| CG08         | 24109473  | CERAMIC CHIP, 25V B 0.047UF K           |
| CG09         | 24797478  | ELECTROLYTIC, 50V 0.47UF M              |
| CG10         | 24539104  | PLASTIC FILM, 50V 0.1UF J               |
| CG12         | 24206108  | ELECTROLYTIC, 50V 0.1UF M 7L 3A         |
| CG13         | 24088907  | TA SOLID ELEC. CHIP, 16V 3.3UF M A-CAE  |
| CG14         | 24797010  | ELECTROLYTIC, 50V 1UF M                 |
| CG16         | 24088098  | TA SOLID ELEC., 16V 10UF M B2-CA        |
| CG17         | 24797010  | ELECTROLYTIC, 50V 1UF M                 |
| CG18         | 24797010  | ELECTROLYTIC, 50V 1UF M                 |
| CG19         | 24797479  | ELECTROLYTIC, 50V 4.7UF M               |
| CG20         | 24797010  | ELECTROLYTIC, 50V 1UF M                 |
| CG25         | 24797479  | ELECTROLYTIC, 50V 4.7UF M               |
| CG26         | 24797479  | ELECTROLYTIC, 50V 4.7UF M               |
| CG27         | 24109223  | CERAMIC CHIP, 25V B 0.022UF K           |
| CG28         | 24797229  | ELECTROLYTIC, 50V 2.2UF M               |
| CG29         | 24591102  | PLASTIC FILM, 50V 1000PF J              |
| CG30         | 24206108  | ELECTROLYTIC, 50V 0.1UF M 7L 3A         |
| CG31         | 24797229  | ELECTROLYTIC, 50V 2.2UF M               |
| CG32         | 24591102  | PLASTIC FILM, 50V 1000PF J              |
| CG33         | 24206108  | ELECTROLYTIC, 50V 0.1UF M 7L 3A         |
| CG34         | 24797229  | ELECTROLYTIC, 50V 2.2UF M               |
| CG35         | 24797229  | ELECTROLYTIC, 50V 2.2UF M               |
| CG42         | 24797010  | ELECTROLYTIC, 50V 1UF M                 |
| CG44         | 24794100  | ELECTROLYTIC, 16V 10UF M                |
| CI01         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K            |
| CI02         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K            |
| CI03         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K            |
| CI04         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K            |
| CI05         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K            |
| CI07         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K            |
| CI08         | 24797010  | ELECTROLYTIC, 50V 1UF M                 |
| CI09         | 24105470  | CERAMIC CHIP, 50V CH 47PF J             |
| CI10         | 24105180  | CERAMIC CHIP, 50V CH 18PF J             |
| CI11         | 24105270  | CERAMIC CHIP, 50V CH 27PF J             |
| CI12         | 24797478  | ELECTROLYTIC, 50V 0.47UF M              |
| CI13         | 24109102  | CERAMIC CHIP, 50V B 1000PF K            |
| CI14         | 24105470  | CERAMIC CHIP, 50V CH 47PF J             |
| CI15         | 24105390  | CERAMIC CHIP, 50V CH 39PF J             |
| CI16         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K            |
| CI17         | 24092726  | CERAMIC CHIP CK733B 16V 2,200,000PFK    |
| CI18         | 24105181  | CERAMIC CHIP, 50V CH 180PF J            |
| CI21         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K            |
| CI23         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K            |
| CI25         | 24105240  | CERAMIC CHIP, 50V CH 24PF J             |
| CI51         | 24797220  | ELECTROLYTIC, 50V 22UF M                |
| CI52         | 24794101  | ELECTROLYTIC, 16V 100UF M               |
| CI53         | 24797339  | ELECTROLYTIC, 50V 3.3UF M               |
| CM51         | 24539104  | PLASTIC FILM, 50V 0.1UF J               |
| CM52         | 24105331  | CERAMIC CHIP, 50V CH 330PF J            |
| CM58         | 24539104  | PLASTIC FILM, 50V 0.1UF J               |
| CR01         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z             |
| CR02         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z             |

| Location No. | Parts No. | Description                     |
|--------------|-----------|---------------------------------|
| CR03         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z     |
| CS02         | 24797229  | ELECTROLYTIC, 50V 2.2UF M       |
| CS04         | 24797229  | ELECTROLYTIC, 50V 2.2UF M       |
| CS08         | 24797229  | ELECTROLYTIC, 50V 2.2UF M       |
| CS10         | 24797229  | ELECTROLYTIC, 50V 2.2UF M       |
| CS25         | 24617912  | ELECTROLYTIC, 50V 2.2UF K 3A LI |
| CS26         | 24617912  | ELECTROLYTIC, 50V 2.2UF K 3A LI |
| CS40         | 24797010  | ELECTROLYTIC, 50V 1UF M         |
| CS42         | 24797010  | ELECTROLYTIC, 50V 1UF M         |
| CS43         | 24109331  | CERAMIC CHIP, 50V B 330PF K     |
| CS44         | 24109331  | CERAMIC CHIP, 50V B 330PF K     |
| CS45         | 24109331  | CERAMIC CHIP, 50V B 330PF K     |
| CS46         | 24109331  | CERAMIC CHIP, 50V B 330PF K     |
| CS49         | 24109331  | CERAMIC CHIP, 50V B 330PF K     |
| CS50         | 24109331  | CERAMIC CHIP, 50V B 330PF K     |
| CS51         | 24109102  | CERAMIC CHIP, 50V B 1000PF K    |
| CS52         | 24109102  | CERAMIC CHIP, 50V B 1000PF K    |
| CS70         | 24794220  | ELECTROLYTIC, 16V 22UF M        |
| CS71         | 24794220  | ELECTROLYTIC, 16V 22UF M        |
| CV01         | 24797229  | ELECTROLYTIC, 50V 2.2UF M       |
| CV03         | 24206108  | ELECTROLYTIC, 50V 0.1UF M 7L 3A |
| CV05         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K    |
| CV07         | 24797229  | ELECTROLYTIC, 50V 2.2UF M       |
| CV09         | 24539104  | PLASTIC FILM, 50V 0.1UF J       |
| CV10         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K    |
| CV11         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K    |
| CV12         | 24539104  | PLASTIC FILM, 50V 0.1UF J       |
| CV27         | 24617912  | ELECTROLYTIC, 50V 2.2UF K 3A LI |
| CV36         | 24794220  | ELECTROLYTIC, 16V 22UF M        |
| CV38         | 24763471  | ELECTROLYTIC, 16V 470UF M       |
| CV39         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K    |
| CV41         | 24797229  | ELECTROLYTIC, 50V 2.2UF M       |
| CV60         | 24763471  | ELECTROLYTIC, 16V 470UF M       |
| CV61         | 24763471  | ELECTROLYTIC, 16V 470UF M       |
| CZ01         | 24794101  | ELECTROLYTIC, 16V 100UF M       |
| CZ02         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K    |
| CZ03         | 24794100  | ELECTROLYTIC, 16V 10UF M        |
| CZ04         | 24105181  | CERAMIC CHIP, 50V CH 180PF J    |
| CZ05         | 24105680  | CERAMIC CHIP, 50V CH 68PF J     |
| CZ06         | 24105330  | CERAMIC CHIP, 50V CH 33PF J     |
| CZ08         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z     |
| CZ09         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K    |
| CZ10         | 24794101  | ELECTROLYTIC, 16V 100UF M       |
| CZ12         | 24105101  | CERAMIC CHIP, 50V CH 100PF J    |
| CZ13         | 24105121  | CERAMIC CHIP, 50V CH 120PF J    |
| CZ14         | 24105151  | CERAMIC CHIP, 50V CH 150PF J    |
| CZ16         | 24105330  | CERAMIC CHIP, 50V CH 33PF J     |
| CZ28         | 24212122  | CERAMIC DISC, 50V B 1200PF K    |
| CZ29         | 24792101  | ELECTROLYTIC, 6.3V 100UF M      |
| CZ30         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z     |
| CZ31         | 24105100  | CERAMIC CHIP, 50V CH 10PF D     |
| CZ32         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z     |
| CZ33         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z     |
| CZ34         | 24794101  | ELECTROLYTIC, 16V 100UF M       |
| CZ35         | 24792101  | ELECTROLYTIC, 6.3V 100UF M      |
| CZ36         | 24792101  | ELECTROLYTIC, 6.3V 100UF M      |
| CZ37         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K    |
| CZ39         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z     |
| CZ41         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K    |
| CZ42         | 24792101  | ELECTROLYTIC, 6.3V 100UF M      |
| CZ43         | 24105181  | CERAMIC CHIP, 50V CH 180PF J    |
| CZ44         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z     |
| CZ45         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z     |
| CZ46         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z     |
| CZ47         | 24100104  | CERAMIC CHIP, 25V F 0.1UF Z     |

| Location No. | Parts No. | Description                  |
|--------------|-----------|------------------------------|
| CZ48         | 24109103  | CERAMIC CHIP, 50V B 0.01UF K |
| CZ49         | 24105330  | CERAMIC CHIP, 50V CH 33PF J  |
| CZ50         | 24797229  | ELECTROLYTIC, 50V 2.2UF M    |
| CZ57         | 24105181  | CERAMIC CHIP, 50V CH 180PF J |
| CZ58         | 24105560  | CERAMIC CHIP, 50V CH 56PF J  |
| CZ60         | 24105100  | CERAMIC CHIP, 50V CH 10PF D  |

#### RESISTORS

|      |          |                                    |
|------|----------|------------------------------------|
| R101 | 24553223 | OXIDE METAL FILM, 1W 22K OHM J     |
| R203 | 24011474 | CHIP, METAL FILM, 1/20W 470K OHM J |
| R207 | 24011101 | CHIP, METAL FILM, 1/20W 100 OHM J  |
| R208 | 24011101 | CHIP, METAL FILM, 1/20W 100 OHM J  |
| R209 | 24011101 | CHIP, METAL FILM, 1/20W 100 OHM J  |
| R216 | 24011223 | CHIP, METAL FILM, 1/20W 22K OHM J  |
| R228 | 24553683 | OXIDE METAL FILM, 1W 68K OHM J     |
| R238 | 24011473 | CHIP, METAL FILM, 1/20W 47K OHM J  |
| R239 | 24011224 | CHIP, METAL FILM, 1/20W 220K OHM J |
| R240 | 24011562 | CHIP, METAL FILM, 1/20W 5.6K OHM J |
| R241 | 24011682 | CHIP, METAL FILM, 1/20W 6.8K OHM J |
| R245 | 24366104 | CARBON FILM, 1/6W 100K OHM J       |
| R261 | 24011472 | CHIP, METAL FILM, 1/20W 4.7K OHM J |
| R262 | 24011102 | CHIP, METAL FILM, 1/20W 1K OHM J   |
| R263 | 24011472 | CHIP, METAL FILM, 1/20W 4.7K OHM J |
| R264 | 24011102 | CHIP, METAL FILM, 1/20W 1K OHM J   |
| R265 | 24011472 | CHIP, METAL FILM, 1/20W 4.7K OHM J |
| R266 | 24011102 | CHIP, METAL FILM, 1/20W 1K OHM J   |
| R271 | 24366471 | CARBON FILM, 1/6W 470 OHM J        |
| R272 | 24011222 | CHIP, METAL FILM, 1/20W 2.2K OHM J |
| R301 | 24011102 | CHIP, METAL FILM, 1/20W 1K OHM J   |
| R303 | 24321109 | OXIDE METAL FILM, 1/2W 1 OHM J     |
| R304 | 24011393 | CHIP, METAL FILM, 1/20W 39K OHM J  |
| R305 | 24322688 | OXIDE METAL FILM, 1W 0.68 OHM J    |
| R306 | 24366563 | CARBON FILM, 1/6W 56K OHM J        |
| R307 | 24011474 | CHIP, METAL FILM, 1/20W 470K OHM J |
| R308 | 24382821 | OXIDE METAL FILM, 1W 82 OHM J      |
| R310 | 24011153 | CHIP, METAL FILM, 1/20W 15K OHM J  |
| R311 | 24011392 | CHIP, METAL FILM, 1/20W 3.9K OHM J |
| R313 | 24011104 | CHIP, METAL FILM, 1/20W 100K OHM J |
| R314 | 24011105 | CHIP, METAL FILM, 1/20W 1M OHM J   |
| R315 | 24011824 | CHIP, METAL FILM, 1/20W 820K OHM J |
| R317 | 24011102 | CHIP, METAL FILM, 1/20W 1K OHM J   |
| R327 | 24339569 | OXIDE METAL FILM, 2W 5.6 OHM J     |
| R328 | 24011824 | CHIP, METAL FILM, 1/20W 820K OHM J |
| R336 | 24383391 | OXIDE METAL FILM, 2W 390 OHM J     |
| R360 | 24011104 | CHIP, METAL FILM, 1/20W 100K OHM J |
| R361 | 24011473 | CHIP, METAL FILM, 1/20W 47K OHM J  |
| R370 | 24321109 | OXIDE METAL FILM, 1/2W 1 OHM J     |
| R371 | 24011103 | CHIP, METAL FILM, 1/20W 10K OHM J  |
| R372 | 24011392 | CHIP, METAL FILM, 1/20W 3.9K OHM J |
| R373 | 24011102 | CHIP, METAL FILM, 1/20W 1K OHM J   |
| R374 | 24366183 | CARBON FILM, 1/6W 18K OHM J        |
| R401 | 24011391 | CHIP, METAL FILM, 1/20W 390 OHM J  |
| R403 | 24011562 | CHIP, METAL FILM, 1/20W 5.6K OHM J |
| R405 | 24382682 | OXIDE METAL FILM, 1W 6.8K OHM J    |
| R406 | 24366473 | CARBON FILM, 1/6W 47K OHM J        |
| R408 | 24011472 | CHIP, METAL FILM, 1/20W 4.7K OHM J |
| R410 | 24011271 | CHIP, METAL FILM, 1/20W 270 OHM J  |
| R411 | 24366561 | CARBON FILM, 1/6W 560 OHM J        |
| R415 | 24553272 | OXIDE METAL FILM, 1W 2.7K OHM J    |
| R416 | 24510392 | CERAMIC COVERED, 5W 3.9K OHM J     |
| R418 | 24383181 | OXIDE METAL FILM, 2W 180 OHM J     |
| R429 | 24366104 | CARBON FILM, 1/6W 100K OHM J       |
| R430 | 24366102 | CARBON FILM, 1/6W 1K OHM J         |
| R431 | 24366103 | CARBON FILM, 1/6W 10K OHM J        |
| R432 | 24011222 | CHIP, METAL FILM, 1/20W 2.2K OHM J |

| Location No. | Parts No. | Description                                |
|--------------|-----------|--------------------------------------------|
| R441         | 24532102  | FUSIBLE, 1W 1K OHM J                       |
| R448         | 24338478  | OXIDE METAL FILM, 1W 0.47 OHM J            |
| R455         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J          |
| R457         | 24011104  | CHIP, METAL FILM, 1/20W 100K OHM J         |
| R460         | 24366562  | CARBON FILM, 1/6W 5.6K OHM J               |
| R461         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J           |
| R463         | 24322479  | OXIDE METAL FILM, 1W 4.7 OHM J             |
| R464         | 24366102  | CARBON FILM, 1/6W 1K OHM J                 |
| R465         | 24011332  | CHIP, METAL FILM, 1/20W 3.3K OHM J         |
| R466         | 24366103  | CARBON FILM, 1/6W 10K OHM J                |
| R467         | 24011474  | CHIP, METAL FILM, 1/20W 470K OHM J         |
| R472         | 24381270  | OXIDE METAL FILM, 1/2W 27 OHM J            |
| R473         | 24366473  | CARBON FILM, 1/6W 47K OHM J                |
| R474         | 24366184  | CARBON FILM, 1/6W 180K OHM J               |
| R475         | 24011391  | CHIP, METAL FILM, 1/20W 390 OHM J          |
| R476         | 24366823  | CARBON FILM, 1/6W 82K OHM J                |
| R477         | 24011273  | CHIP, METAL FILM, 1/20W 27K OHM J          |
| R478         | 24327133  | METAL FILM, 1/4W 13K OHM F                 |
| R481         | 24011333  | CHIP, METAL FILM, 1/20W 33K OHM J          |
| R482         | 24327472  | METAL FILM, 1/4W 47K F                     |
| R485         | 24338568  | OXIDE METAL FILM, 1W 0.56 OHM J            |
| R486         | 24552820  | OXIDE METAL FILM, 1/2W 82 OHM J            |
| R487         | 24552301  | OXIDE METAL FILM, 1/2W 300 OHM J           |
| R488         | 24327183  | METAL FILM, 1/4W 18K OHM F                 |
| R489         | 24327183  | METAL FILM, 1/4W 18K OHM F                 |
| R490         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J           |
| R493         | 24366102  | CARBON FILM, 1/6W 1K OHM J                 |
| R494         | 24366471  | CARBON FILM, 1/6W 470 OHM J                |
| R495         | 24366561  | CARBON FILM, 1/6W 560 OHM J                |
| R501         | 24011153  | CHIP, METAL FILM, 1/20W 15K OHM J          |
| R502         | 24366101  | CARBON FILM, 1/6W 100 OHM J                |
| R503         | 24366101  | CARBON FILM, 1/6W 100 OHM J                |
| R511         | 24366391  | CARBON FILM, 1/6W 390 OHM J                |
| R512         | 24011391  | CHIP, METAL FILM, 1/20W 390 OHM J          |
| R612         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J          |
| R613         | 24011222  | CHIP, METAL FILM, 1/20W 2.2K OHM J         |
| R614         | 24366102  | CARBON FILM, 1/6W 1K OHM J                 |
| R663         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J          |
| R664         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J          |
| R667         | 24011223  | CHIP, METAL FILM, 1/20W 22K OHM J          |
| R668         | 24366103  | CARBON FILM, 1/6W 10K OHM J                |
| R669         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J          |
| R674         | 24011153  | CHIP, METAL FILM, 1/20W 15K OHM J          |
| R676         | 24366229  | CARBON FILM, 1/6W 2.2 OHM J                |
| R677         | 24366229  | CARBON FILM, 1/6W 2.2 OHM J                |
| R678         | 24011153  | CHIP, METAL FILM, 1/20W 15K OHM J          |
| R808         | 24019474  | THERMISTOR, PTC THERMISTOR<br>AC125V 1R5 M |
| R810         | 24568828  | CERAMIC COVERED, 7W 0.82 OHM K             |
| R814         | 24366182  | CARBON FILM, 1/6W 1.8K OHM J               |
| R818         | 24510150  | CERAMIC COVERED, 5W 15 OHM J               |
| R820         | 24322208  | OXIDE METAL FILM, 1W 0.2 OHM J             |
| R821         | 24321109  | OXIDE METAL FILM, 1/2W 1 OHM J             |
| R822         | 24366152  | CARBON FILM, 1/6W 1.5K OHM J               |
| R823         | 24366182  | CARBON FILM, 1/6W 1.8K OHM J               |
| R829         | 24004945  | METAL FILM, 1W 0.18 OHM J                  |
| R831         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J          |
| R835         | 24552681  | OXIDE METAL FILM, 1/2W 680 OHM J           |
| R861         | 24366104  | CARBON FILM, 1/6W 100K OHM J               |
| R862         | 24366104  | CARBON FILM, 1/6W 100K OHM J               |
| △ R898       | 24010001  | CARBON FILM, 1/2W 3.9M OHM J               |
| R901         | 24552102  | OXIDE METAL FILM, 1/2W 1K OHM J            |
| R902         | 24552102  | OXIDE METAL FILM, 1/2W 1K OHM J            |
| R903         | 24552102  | OXIDE METAL FILM, 1/2W 1K OHM J            |
| R904         | 24366103  | CARBON FILM, 1/6W 10K OHM J                |

| Location No. | Parts No. | Description                        |
|--------------|-----------|------------------------------------|
| R905         | 24366101  | CARBON FILM, 1/6W 100 OHM J        |
| R914         | 24366561  | CARBON FILM, 1/6W 560 OHM J        |
| R915         | 24366301  | CARBON FILM, 1/6W 300 OHM J        |
| R916         | 24366820  | CARBON FILM, 1/6W 82 OHM J         |
| R917         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| R918         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| R920         | 24000880  | FUSIBLE, 1W 5.1 OHM J              |
| R921         | 24366561  | CARBON FILM, 1/6W 560 OHM J        |
| R922         | 24366301  | CARBON FILM, 1/6W 300 OHM J        |
| R924         | 24366820  | CARBON FILM, 1/6W 82 OHM J         |
| R927         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| R928         | 24366561  | CARBON FILM, 1/6W 560 OHM J        |
| R929         | 24366301  | CARBON FILM, 1/6W 300 OHM J        |
| R930         | 24366820  | CARBON FILM, 1/6W 82 OHM J         |
| R932         | 24366272  | CARBON FILM, 1/6W 2.7K OHM J       |
| R934         | 24366271  | CARBON FILM, 1/6W 270 OHM J        |
| R935         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| R936         | 24366750  | CARBON FILM, 1/6W 75 OHM J         |
| R942         | 24366562  | CARBON FILM, 1/6W 5.6K OHM J       |
| R943         | 24366562  | CARBON FILM, 1/6W 5.6K OHM J       |
| R944         | 24366562  | CARBON FILM, 1/6W 5.6K OHM J       |
| R960         | 24383153  | OXIDE METAL FILM, 2W 15K OHM J     |
| R961         | 24383153  | OXIDE METAL FILM, 2W 15K OHM J     |
| R962         | 24383153  | OXIDE METAL FILM, 2W 15K OHM J     |
| R968         | 24366150  | CARBON FILM, 1/6W 15 OHM J         |
| R977         | 24366122  | CARBON FILM, 1/6W 1.2K OHM J       |
| RA03         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RA04         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RA06         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RA07         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RA08         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RA09         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RA10         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RA15         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RA16         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RA17         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RA18         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RA21         | 24366472  | CARBON FILM, 1/6W 4.7K OHM J       |
| RA22         | 24011331  | CHIP, METAL FILM, 1/20W 330 OHM J  |
| RA23         | 24011331  | CHIP, METAL FILM, 1/20W 330 OHM J  |
| RA24         | 24011331  | CHIP, METAL FILM, 1/20W 330 OHM J  |
| RA25         | 24011331  | CHIP, METAL FILM, 1/20W 330 OHM J  |
| RA26         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RA27         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RA33         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RA35         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RA36         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RA37         | 24011331  | CHIP, METAL FILM, 1/20W 330 OHM J  |
| RA38         | 24011331  | CHIP, METAL FILM, 1/20W 330 OHM J  |
| RA40         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RA41         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RA61         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J  |
| RA62         | 24366103  | CARBON FILM, 1/6W 10K OHM J        |
| RA67         | 24011472  | CHIP, METAL FILM, 1/20W 4.7K OHM J |
| RA68         | 24011472  | CHIP, METAL FILM, 1/20W 4.7K OHM J |
| RA71         | 24011683  | CHIP, METAL FILM, 1/20W 68K OHM J  |
| RA72         | 24011223  | CHIP, METAL FILM, 1/20W 22K OHM J  |
| RA73         | 24366103  | CARBON FILM, 1/6W 10K OHM J        |
| RA74         | 24366333  | CARBON FILM, 1/6W 33K OHM J        |
| RB01         | 24366271  | CARBON FILM, 1/6W 270 OHM J        |
| RB03         | 24366101  | CARBON FILM, 1/6W 100 OHM J        |
| RB09         | 24327470  | METAL FILM, 1/4W 47 OHM F          |
| RB11         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J  |
| RB24         | 24366472  | CARBON FILM, 1/6W 4.7K OHM J       |
| RB25         | 24011472  | CHIP, METAL FILM, 1/20W 4.7K OHM J |

| Location No. | Parts No. | Description                        |
|--------------|-----------|------------------------------------|
| RB40         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J  |
| RB42         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RB43         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J  |
| RB44         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J  |
| RB45         | 24366181  | CARBON FILM, 1/6W 180 OHM J        |
| RB46         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RB47         | 24011332  | CHIP, METAL FILM, 1/20W 3.3K OHM J |
| RB49         | 24011332  | CHIP, METAL FILM, 1/20W 3.3K OHM J |
| RB60         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RB61         | 24011224  | CHIP, METAL FILM, 1/20W 220K OHM J |
| RB62         | 24011123  | CHIP, METAL FILM, 1/20W 12K OHM J  |
| RB63         | 24011392  | CHIP, METAL FILM, 1/20W 3.9K OHM J |
| RB64         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J  |
| RB65         | 24366221  | CARBON FILM, 1/6W 220 OHM J        |
| RB66         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J  |
| RB67         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RG05         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RG08         | 24011394  | CHIP, METAL FILM, 1/20W 390K OHM J |
| RG09         | 24011473  | CHIP, METAL FILM, 1/20W 47K OHM J  |
| RG14         | 24011332  | CHIP, METAL FILM, 1/20W 3.3K OHM J |
| RG15         | 24011152  | CHIP, METAL FILM, 1/20W 1.5K OHM J |
| RG16         | 24327153  | METAL FILM, 1/4W 15K OHM J         |
| RG17         | 24011472  | CHIP, METAL FILM, 1/20W 4.7K OHM J |
| RG22         | 24366101  | CARBON FILM, 1/6W 100 OHM J        |
| RG23         | 24366101  | CARBON FILM, 1/6W 100 OHM J        |
| RG43         | 24011472  | CHIP, METAL FILM, 1/20W 4.7K OHM J |
| RG44         | 24011222  | CHIP, METAL FILM, 1/20W 2.2K OHM J |
| RI01         | 24011270  | CHIP, METAL FILM, 1/20W 27 OHM J   |
| RI02         | 24011512  | CHIP, METAL FILM, 1/20W 5.1K OHM J |
| RI03         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RI04         | 24011470  | CHIP, METAL FILM, 1/20W 47 OHM J   |
| RI05         | 24011361  | CHIP, METAL FILM, 1/20W 360 OHM J  |
| RI06         | 24011519  | METAL FILM CHIP, 1/16W 5.1 J       |
| RI07         | 24011360  | METAL FILM CHIP, 1/20W 36 J        |
| RI08         | 24011332  | CHIP, METAL FILM, 1/20W 3.3K OHM J |
| RI09         | 24011123  | CHIP, METAL FILM, 1/20W 12K OHM J  |
| RI11         | 24011113  | CHIP, METAL FILM, 1/20W 11K OHM J  |
| RI13         | 24011112  | CHIP, METAL FILM, 1/20W 1.1K OHM J |
| RI14         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RI15         | 24011182  | CHIP, METAL FILM, 1/20W 1.8K OHM J |
| RI16         | 24011122  | CHIP, METAL FILM, 1/20W 1.2K OHM J |
| RI17         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RI18         | 24011132  | CHIP, METAL FILM, 1/20W 1.3K OHM J |
| RI19         | 24011391  | CHIP, METAL FILM, 1/20W 390 OHM J  |
| RI20         | 24011821  | CHIP, METAL FILM, 1/20W 820 OHM J  |
| RI21         | 24011271  | CHIP, METAL FILM, 1/20W 270 OHM J  |
| RI22         | 24011475  | METAL FILM CHIP, 1/16W 4R7M K      |
| RI23         | 24011221  | CHIP, METAL FILM, 1/20W 220 OHM J  |
| RI27         | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J  |
| RI28         | 24011123  | CHIP, METAL FILM, 1/20W 12K OHM J  |
| RI30         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RI32         | 24366750  | CARBON FILM, 1/6W 75 OHM J         |
| RI33         | 24011124  | CHIP, METAL FILM, 1/20W 120K OHM J |
| RI35         | 24011563  | CHIP, METAL FILM, 1/20W 56K OHM J  |
| RI36         | 24011683  | CHIP, METAL FILM, 1/20W 68K OHM J  |
| RI51         | 24066046  | VARIABLE. CARBON, 0.1W 20K N       |
| RI52         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RJ41         | 24000445  | CHIP JUMPER, 1608TYPE              |
| RJ42         | 24000445  | CHIP JUMPER, 1608TYPE              |
| RJ43         | 24000445  | CHIP JUMPER, 1608TYPE              |
| RJ44         | 24000445  | CHIP JUMPER, 1608TYPE              |
| RJ45         | 24000445  | CHIP JUMPER, 1608TYPE              |
| RJ46         | 24000445  | CHIP JUMPER, 1608TYPE              |
| RJ47         | 24000445  | CHIP JUMPER, 1608TYPE              |
| RR07         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |

| Location No. | Parts No. | Description                        |
|--------------|-----------|------------------------------------|
| RR93         | 24011472  | CHIP, METAL FILM, 1/20W 4.7K OHM J |
| RS02         | 24011682  | CHIP, METAL FILM, 1/20W 6.8K OHM J |
| RS04         | 24011682  | CHIP, METAL FILM, 1/20W 6.8K OHM J |
| RS08         | 24011682  | CHIP, METAL FILM, 1/20W 6.8K OHM J |
| RS10         | 24011682  | CHIP, METAL FILM, 1/20W 6.8K OHM J |
| RS25         | 24011682  | CHIP, METAL FILM, 1/20W 6.8K OHM J |
| RS26         | 24011682  | CHIP, METAL FILM, 1/20W 6.8K OHM J |
| RS28         | 24366472  | CARBON FILM, 1/6W 4.7K OHM J       |
| RS40         | 24366101  | CARBON FILM, 1/6W 100 OHM J        |
| RS41         | 24011152  | CHIP, METAL FILM, 1/20W 1.5K OHM J |
| RS42         | 24366101  | CARBON FILM, 1/6W 100 OHM J        |
| RS60         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RS61         | 24011222  | CHIP, METAL FILM, 1/20W 2.2K OHM J |
| RS62         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RS63         | 24011222  | CHIP, METAL FILM, 1/20W 2.2K OHM J |
| RS64         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RS65         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RS66         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RS68         | 24011223  | CHIP, METAL FILM, 1/20W 22K OHM J  |
| RS69         | 24011223  | CHIP, METAL FILM, 1/20W 22K OHM J  |
| RS70         | 24011104  | CHIP, METAL FILM, 1/20W 100K OHM J |
| RS71         | 24011104  | CHIP, METAL FILM, 1/20W 100K OHM J |
| RV01         | 24011750  | CHIP, METAL FILM, 1/20W 75 OHM J   |
| RV02         | 24011750  | CHIP, METAL FILM, 1/20W 75 OHM J   |
| RV03         | 24011750  | CHIP, METAL FILM, 1/20W 75 OHM J   |
| RV04         | 24011750  | CHIP, METAL FILM, 1/20W 75 OHM J   |
| RV05         | 24366750  | CARBON FILM, 1/6W 75 OHM J         |
| RV07         | 24366103  | CARBON FILM, 1/6W 10K OHM J        |
| RV08         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RV09         | 24366103  | CARBON FILM, 1/6W 10K OHM J        |
| RV10         | 24000445  | CHIP JUMPER, 1608TYPE              |
| RV12         | 24366101  | CARBON FILM, 1/6W 100 OHM J        |
| RV14         | 24011102  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RV15         | 24366102  | CARBON FILM, 1/6W 1K OHM J         |
| RV16         | 24366471  | CARBON FILM, 1/6W 470 OHM J        |
| RV19         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RV20         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RV60         | 24552101  | OXIDE METAL FILM, 1/2W 100 OHM J   |
| RV61         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RV62         | 24366750  | CARBON FILM, 1/6W 75 OHM J         |
| RV63         | 24366221  | CARBON FILM, 1/6W 220 OHM J        |
| RW02         | 24011750  | CHIP, METAL FILM, 1/20W 75 OHM J   |
| RW03         | 24011750  | CHIP, METAL FILM, 1/20W 75 OHM J   |
| RZ05         | 24366101  | CARBON FILM, 1/6W 100 OHM J        |
| RZ06         | 24366101  | CARBON FILM, 1/6W 100 OHM J        |
| RZ07         | 24366221  | CARBON FILM, 1/6W 220 OHM J        |
| RZ08         | 24011151  | CHIP, METAL FILM, 1/20W 150 OHM J  |
| RZ10         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RZ11         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RZ12         | 24011182  | CHIP, METAL FILM, 1/20W 1.8K OHM J |
| RZ13         | 24011392  | CHIP, METAL FILM, 1/20W 3.9K OHM J |
| RZ14         | 24011123  | CHIP, METAL FILM, 1/20W 12K OHM J  |
| RZ15         | 24011151  | CHIP, METAL FILM, 1/20W 150 OHM J  |
| RZ16         | 24366101  | CARBON FILM, 1/6W 100 OHM J        |
| RZ17         | 24366181  | CARBON FILM, 1/6W 180 OHM J        |
| RZ18         | 24011121  | CHIP, METAL FILM, 1/20W 120 OHM J  |
| RZ21         | 24011471  | CHIP, METAL FILM, 1/20W 470 OHM J  |
| RZ22         | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J  |
| RZ28         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RZ34         | 24011474  | CHIP, METAL FILM, 1/20W 470K OHM J |
| RZ35         | 24011821  | CHIP, METAL FILM, 1/20W 820 OHM J  |
| RZ36         | 24011123  | CHIP, METAL FILM, 1/20W 12K OHM J  |
| RZ43         | 24011220  | CHIP, METAL FILM, 1/20W 22 OHM J   |
| RZ44         | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J   |
| RZ45         | 24366220  | CARBON FILM, 1/6W 22 OHM J         |

| Location No.                    | Parts No. | Description                                  |
|---------------------------------|-----------|----------------------------------------------|
| RZ46                            | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J             |
| RZ49                            | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J             |
| RZ60                            | 24366102  | CARBON FILM, 1/6W 1K OHM J                   |
| RZ61                            | 24011822  | CHIP, METAL FILM, 1/20W 8.2K OHM J           |
| RZ62                            | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J            |
| RZ63                            | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J            |
| RZ65                            | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J             |
| RZ66                            | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J             |
| RZ68                            | 24011102  | CHIP, METAL FILM, 1/20W 1K OHM J             |
| RZ71                            | 24011103  | CHIP, METAL FILM, 1/20W 10K OHM J            |
| <b>COILS &amp; TRANSFORMERS</b> |           |                                              |
| L101                            | 23289846  | COIL, PEAKING, TRF4101AT                     |
| L201                            | 23238703  | COIL, PEAKING, TRF4820AJ                     |
| L301                            | 23103145  | FERRITE CHOKE, TEM2011AA                     |
| L302                            | 23103145  | FERRITE CHOKE, TEM2011AA                     |
| L303                            | 23103248  | FERRITE CHOKE, TEM2014AA                     |
| L401                            | 23280016  | COIL, PEAKING, TRF4100AZ                     |
| L441                            | 23233092  | COIL, TLN2138G                               |
| L442                            | 23248121  | COIL, CHOKE, TLN3383D                        |
| L461                            | 23248173  | COIL, CHOKE, TLN3333AD                       |
| L501                            | 23238711  | COIL, PEAKING, TRF4180AJ                     |
| L502                            | 23289844  | COIL, PEAKING, TRF4470AT                     |
| L805                            | 23248213  | COIL, CHOKE, TLN3481AH                       |
| L806                            | 23248213  | COIL, CHOKE, TLN3481AH                       |
| L815                            | 23103145  | FERRITE CHOKE, TEM2011AA                     |
| L824                            | 23103145  | FERRITE CHOKE, TEM2011AA                     |
| L883                            | 23103145  | FERRITE CHOKE, TEM2011AA                     |
| L885                            | 23248073  | COIL, CHOKE, TLN3299D                        |
| L886                            | 23103145  | FERRITE CHOKE, TEM2011AA                     |
| △ L901                          | 23200481  | COIL, DG 0.71CU 40T-2LOOP, TSB-2415AH        |
| L902                            | 23280024  | COIL, PEAKING, TRF4221AZ                     |
| L903                            | 23280024  | COIL, PEAKING, TRF4221AZ                     |
| L904                            | 23280024  | COIL, PEAKING, TRF4221AZ                     |
| LA01                            | 23289840  | COIL, PEAKING, TRF4100AT                     |
| LG01                            | 23289220  | COIL, PEAKING, TRF4220AF                     |
| LI01                            | 23246051  | COIL, CHIP-INDUCTOR-0.22MMH K, COLTRF4R22CE  |
| LI02                            | 23246104  | CHIP INDUCTOR, TRFR5C                        |
| LI51                            | 23289470  | COIL, PEAKING, TRF4470AF                     |
| LI52                            | 23289120  | COIL, PEAKING, TRF4120AF                     |
| LI53                            | 23289180  | COIL, PEAKING, TRF4180AF                     |
| LI54                            | 23232050  | COIL, VARIABLE, TRF3554D                     |
| LI55                            | 23289129  | COIL, PEAKING 1.0MMH J 0405, TRF41R2AF       |
| LI56                            | 23289180  | COIL, PEAKING, TRF4180AF                     |
| LI57                            | 23289228  | COIL, PEAKING, TRF4R22AF                     |
| LV01                            | 23289840  | COIL, PEAKING, TRF4100AT                     |
| LV02                            | 23103159  | FILTER, EMI, TEM2028AA, 7.5X6.4X8 60MMH 0.5A |
| LV98                            | 23103159  | FILTER, EMI, TEM2028AA, 7.5X6.4X8 60MMH 0.5A |
| LV99                            | 23103159  | FILTER, EMI, TEM2028AA, 7.5X6.4X8 60MMH 0.5A |
| LZ01                            | 23289840  | COIL, PEAKING, TRF4100AT                     |
| LZ02                            | 23103145  | FERRITE CHOKE, TEM2011AA                     |
| LZ03                            | 23103145  | FERRITE CHOKE, TEM2011AA                     |
| LZ10                            | 23238707  | COIL, PEAKING, TRF4390AJ                     |
| LZ20                            | 23238718  | COIL, PEAKING, TRF4479AJ                     |
| LZ21                            | 23238711  | COIL, PEAKING, TRF4180AJ                     |
| LZ22                            | 23238506  | COIL, PEAKING, TRF4229AJ                     |
| T401                            | 23224367  | TRANSFORMER, HORIZ DRIVER, TLN1098AH         |
| △ T461                          | 23236733  | TRANSFORMER, FLYBACK, TFB4192AS              |
| △ T801                          | 23211739  | COIL, LINE FILTER, TRF3229AL                 |
| △ T840                          | 23217572  | TRANSFORMER, POWER EI28 11.5V, TPW1571AT     |

| Location No.          | Parts No. | Description                               |
|-----------------------|-----------|-------------------------------------------|
| T862                  | 23217583  | TRANSFORMER, CONV TRS EER40, TPW3498AB    |
| <b>SEMICONDUCTORS</b> |           |                                           |
| Q203                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| Q204                  | 23114460  | TRANSISTOR, RN1204                        |
| Q205                  | 23114460  | TRANSISTOR, RN1204                        |
| Q301                  | 23319787  | IC, LA7833S                               |
| Q301B                 | 72471082  | SCREW, 3X10MM                             |
| Q370                  | 23314962  | TRANSISTOR, KTA1266 Y                     |
| Q402                  | 23114755  | TRANSISTOR, 2SC2482FA-1                   |
| Q403                  | 23314444  | TRANSISTOR, 2SC4721, P                    |
| Q404                  | 23314955  | TRANSISTOR, 2SD2553(FA)                   |
| Q404B                 | 72471082  | SCREW, 3X10MM                             |
| Q421                  | 23009187  | IC, REGULATOR +9V 4%, KIA7809API          |
| Q421B                 | 23035308  | SCREW, 3X8MM, TAPPING                     |
| Q460                  | 23314938  | TRANSISTOR, 2SD2493(P)                    |
| Q460B                 | 72471082  | SCREW, 3X10MM                             |
| Q461                  | 23314962  | TRANSISTOR, KTA1266 Y                     |
| Q471                  | 23314961  | TRANSISTOR, KTA1266 O                     |
| Q472                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| Q480                  | 23114759  | TRANSISTOR, 2SA949-Y                      |
| Q481                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| Q482                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| Q483                  | 23114469  | TRANSISTOR, RN2201                        |
| Q501                  | 23906843  | IC, TA1310N                               |
| Q610                  | 23000249  | IC, TA8265K                               |
| Q610B                 | 70391356  | SCREW, BITTB3X10 SZN                      |
| Q611                  | 23114623  | TRANSISTOR, 2SC2878-A(TEM                 |
| Q612                  | 23314962  | TRANSISTOR, KTA1266 Y                     |
| Q613                  | 23114623  | TRANSISTOR, 2SC2878-A(TEM                 |
| Q801                  | 23135032  | IC, STR-G5624A                            |
| Q801B                 | 72471082  | SCREW, 3X10MM                             |
| Q805                  | 23114459  | TRANSISTOR, RN1205                        |
| Q830                  | 23009188  | IC, KIA7805API                            |
| Q830B                 | 23035308  | SCREW, 3X8MM, TAPPING                     |
| Q831                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| Q840                  | 23000140  | IC, MM1437AS                              |
| Q843                  | 23114459  | TRANSISTOR, RN1205                        |
| Q901                  | 23314780  | TRANSISTOR, 2SC4544                       |
| Q902                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| Q903                  | 23314780  | TRANSISTOR, 2SC4544                       |
| Q904                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| Q905                  | 23314780  | TRANSISTOR, 2SC4544                       |
| Q906                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| Q907                  | 23314962  | TRANSISTOR, KTA1266 Y                     |
| Q908                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| QA01                  | 23009196  | IC, TMP88CP38AN-3PV2                      |
| QA02                  | 23009326  | IC, AT24C04-10PI-                         |
| QB01                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| QB03                  | 23114459  | TRANSISTOR, RN1205                        |
| QB23                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| QB40                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| QB41                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| QB60                  | 23314962  | TRANSISTOR, KTA1266 Y                     |
| QB61                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| QB62                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| QG01                  | 23906499  | IC, UPC1851BCU                            |
| QI01                  | 23114611  | TRANSISTOR, 2SC3357                       |
| QI02                  | 23314994  | TRANSISTOR, 2SA1576A106                   |
| QI03                  | 23314993  | TRANSISTOR, 2SC4081 Q                     |
| QI05                  | 23009240  | IC, VIF/SIF SSOP24PIN, TA1274F(FA03A5,EL) |
| QS60                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| QS61                  | 23314965  | TRANSISTOR, KTC3198 Y                     |
| QS62                  | 23114466  | TRANSISTOR, RN2204                        |

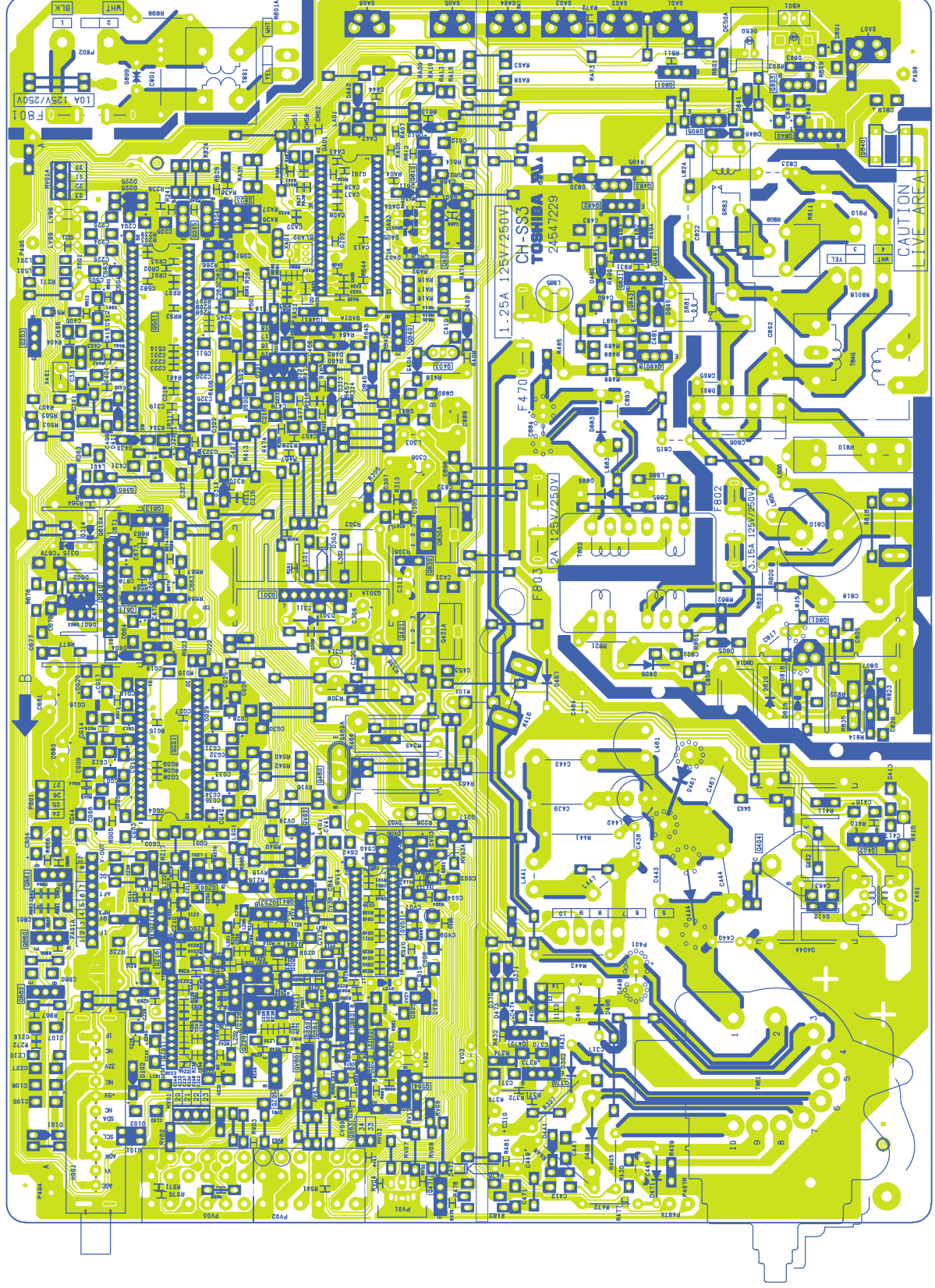
| Location No. | Parts No. | Description                          |
|--------------|-----------|--------------------------------------|
| QS63         | 23114623  | TRANSISTOR, 2SC2878-A(TEM            |
| QS64         | 23114623  | TRANSISTOR, 2SC2878-A(TEM            |
| QV01         | 23000686  | IC, MM1311BD                         |
| QV02         | 23314965  | TRANSISTOR, KTC3198 Y                |
| QV60         | 23314965  | TRANSISTOR, KTC3198 Y                |
| QZ01         | 23009176  | IC, 3LINE-DIGITAL Y/C SEPA, TC90A53N |
| QZ04         | 23314965  | TRANSISTOR, KTC3198 Y                |
| QZ05         | 23314962  | TRANSISTOR, KTA1266 Y                |
| QZ06         | 23314965  | TRANSISTOR, KTC3198 Y                |
| QZ08         | 23314962  | TRANSISTOR, KTA1266 Y                |
| QZ14         | 23314962  | TRANSISTOR, KTA1266 Y                |
| QZ20         | 23314965  | TRANSISTOR, KTC3198 Y                |
| QZ21         | 23314962  | TRANSISTOR, KTA1266 Y                |
| QZ23         | 23314962  | TRANSISTOR, KTA1266 Y                |
| D101         | 23316755  | DIODE, ZENER, MTZJ33C                |
| D201         | 23118859  | DIODE, 1SS133                        |
| D221         | 23118859  | DIODE, 1SS133                        |
| D222         | 23118859  | DIODE, 1SS133                        |
| D225         | 23357281  | DIODE, DZ9.1 BS A                    |
| D226         | 23357281  | DIODE, DZ9.1 BS A                    |
| D301         | 23357366  | DIODE, FR105-B5                      |
| D302         | 23357366  | DIODE, FR105-B5                      |
| D310         | 23118859  | DIODE, 1SS133                        |
| D313         | 23118859  | DIODE, 1SS133                        |
| D370         | 23357267  | DIODE, DZ5.6 BS B                    |
| D371         | 23118859  | DIODE, 1SS133                        |
| D406         | 23357366  | DIODE, FR105-B5                      |
| D408         | 23316414  | DIODE, 3JH41(FALC3)                  |
| D409         | 23118622  | DIODE, ZENER, RD10ES B2              |
| D411         | 23357279  | DIODE, DZ8.2 BS B                    |
| D430         | 23357283  | DIODE, DZ9.1 BS C                    |
| D441         | 23357282  | DIODE, DZ9.1 BS B                    |
| D444         | 23316254  | DIODE, ERC06-15                      |
| D461         | 23118338  | DIODE, RU4AM LF-K2                   |
| D462         | 23118859  | DIODE, 1SS133                        |
| D466         | 23357248  | DIODE, DZ2.7 BS B                    |
| D467         | 23357366  | DIODE, FR105-B5                      |
| D471         | 23357366  | DIODE, FR105-B5                      |
| D472         | 23115774  | DIODE, ZENER, RD6.2E(FA-1)           |
| D473         | 23118859  | DIODE, 1SS133                        |
| D480         | 23357299  | DIODE, DZ16 BS A                     |
| D611         | 23118859  | DIODE, 1SS133                        |
| D612         | 23118859  | DIODE, 1SS133                        |
| D801         | 23316391  | DIODE, D3SB60(4103)                  |
| D805         | 23118859  | DIODE, 1SS133                        |
| D806         | 23357366  | DIODE, FR105-B5                      |
| D807         | 23118859  | DIODE, 1SS133                        |
| D810         | 23316269  | DIODE, AK04                          |
| D830         | 23118859  | DIODE, 1SS133                        |
| D840         | 23316962  | DIODE, S1WBA20                       |
| D841         | 23357267  | DIODE, DZ5.6 BS B                    |
| D845         | 23118859  | DIODE, 1SS133                        |
| D846         | 23118859  | DIODE, 1SS133                        |
| D883         | 23357344  | DIODE, RU3AM                         |
| D885         | 23118094  | DIODE, EU2A                          |
| △ D899       | 24019485  | VARISTOR, TNR10V431K                 |
| D901         | 23118859  | DIODE, 1SS133                        |
| D902         | 23118859  | DIODE, 1SS133                        |
| D904         | 23118859  | DIODE, 1SS133                        |
| D905         | 23118859  | DIODE, 1SS133                        |
| D906         | 23118859  | DIODE, 1SS133                        |
| D911         | 23118095  | DIODE, ERB44-06                      |
| DA42         | 23357267  | DIODE, DZ5.6 BS B                    |
| DB03         | 23358522  | DIODE, LED, S1R-56SB3F               |
| DB45         | 23118859  | DIODE, 1SS133                        |

| Location No.         | Parts No. | Description                              |
|----------------------|-----------|------------------------------------------|
| DE50                 | 23358571  | DIODE, LED, BT-H254N-31-SH               |
| DV01                 | 23357281  | DIODE, DZ9.1 BS A                        |
| DV03                 | 23357281  | DIODE, DZ9.1 BS A                        |
| DV05                 | 23357281  | DIODE, DZ9.1 BS A                        |
| DV09                 | 23357281  | DIODE, DZ9.1 BS A                        |
| DV27                 | 23357281  | DIODE, DZ9.1 BS A                        |
| <b>MISCELLANEOUS</b> |           |                                          |
| B205                 | 23974994  | BAND, KESSOKU                            |
| B230                 | 23037312  | SCREW, BTBW3X12SZN                       |
| B231                 | 23035412  | SCREW, BTB4X12SZN                        |
| B232                 | 23035312  | SCREW, BTB3X12SZN                        |
| △ F470               | 23144906  | FUSE, CARTRIDGE, F1.25U1                 |
| F470A                | 23165433  | FUSE HOLDER, 5.2 SOC                     |
| △ F801               | 23144518  | FUSE, CARTRIDGE, 125V 10A                |
| F801A                | 23165433  | FUSE HOLDER, 5.2 SOC                     |
| △ F802               | 23144893  | FUSE, 3.15A                              |
| F802A                | 23165433  | FUSE HOLDER, 5.2 SOC                     |
| △ F803               | 23144897  | FUSE, 2A 125V                            |
| F803A                | 23165433  | FUSE HOLDER, 5.2 SOC                     |
| G217                 | 24366153  | CARBON FILM, 1/6W 15K OHM J              |
| G402                 | 23103145  | FERRITE CHOKE, TEM2011AA                 |
| G403                 | 23103145  | FERRITE CHOKE, TEM2011AA                 |
| G404                 | 23238714  | COIL, PEAKING, TRF4100AJ                 |
| G500                 | 23280016  | COIL, PEAKING, TRF4100AZ                 |
| G816                 | 23103145  | FERRITE CHOKE, TEM2011AA                 |
| G890                 | 23280016  | COIL, PEAKING, TRF4100AZ                 |
| G891                 | 23280016  | COIL, PEAKING, TRF4100AZ                 |
| G908                 | 23280016  | COIL, PEAKING, TRF4100AZ                 |
| G933                 | 24366750  | CARBON FILM, 1/6W 75 OHM J               |
| GJ01                 | 24000445  | CHIP JUMPER, 1608TYPE                    |
| GJ02                 | 24000445  | CHIP JUMPER, 1608TYPE                    |
| GR01                 | 24366470  | CARBON FILM, 1/6W 47 OHM J               |
| GR02                 | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J        |
| GR03                 | 24011101  | CHIP, METAL FILM, 1/20W 100 OHM J        |
| KB01                 | 23906805  | IC, REMOTE PHOTO RECIEVER, PIC-TB17      |
| △ M461A              | 23192957  | ANODE CAP ASSY, TCC5602AT                |
| △ M461B              | 23504203  | CABLE, FOCUS                             |
| M461C                | 23504204  | CABLE, SCREEN                            |
| N726                 | 23969041  | TAPE WHITE 3M #1, W=1 INCH TNP COMMON    |
| △ P801               | 23372115  | POWER CORD, U/C 125V10A HSV 4, CMC-02P 3 |
| △ P910               | 23164725  | CONNECTOR, PLUG 2P                       |
| PV01                 | 23365575  | JACK, Y/C JLC, YKF51-5575                |
| PV02                 | 23365990  | JACK, PIN 6P INCHAN, JACK 6P             |
| PV03                 | 23365991  | CONNECTOR, JACK                          |
| PV04                 | 23365763  | PHONO JACK, 3P                           |
| SA01                 | 23344443  | SWITCH, TACTING SWITCH TSV TYP TSVB-1    |
| SA02                 | 23344443  | SWITCH, TACTING SWITCH TSV TYP TSVB-1    |
| SA03                 | 23344443  | SWITCH, TACTING SWITCH TSV TYP TSVB-1    |
| SA04                 | 23344443  | SWITCH, TACTING SWITCH TSV TYP TSVB-1    |
| SA05                 | 23344443  | SWITCH, TACTING SWITCH TSV TYP TSVB-1    |
| SA06                 | 23344443  | SWITCH, TACTING SWITCH TSV TYP TSVB-1    |
| SA07                 | 23344443  | SWITCH, TACTING SWITCH TSV TYP TSVB-1    |
| △ SR81               | 23146564  | RELAY, DC12V, TV5, DG-3                  |
| △ SR83               | 23146564  | RELAY, DC12V, TV5, DG-3                  |
| △ V901A              | 23902068  | SOCKET CRT, 10P HOSIDEN, HPS0360         |
| W661                 | 23351191  | SPEAKER, 60X120 8-OHM 5W, SPK-1360AE     |
| W662                 | 23351191  | SPEAKER, 60X120 8-OHM 5W, SPK-1360AE     |
| X401                 | 23153721  | CERAMIC RESONATOR, 503KHZ                |
| X501                 | 23153961  | CRYSTAL, 3.58MHZ                         |
| XA01                 | 23153504  | CERAMIC RESONATOR, 8.00MHZ 250HM         |
| ZI51                 | 23303197  | PIF SAW FILTER, TSF1248P                 |
| ZI52                 | 23303271  | FILTER, TRAP 4.5MHZ, TCF1138AM           |

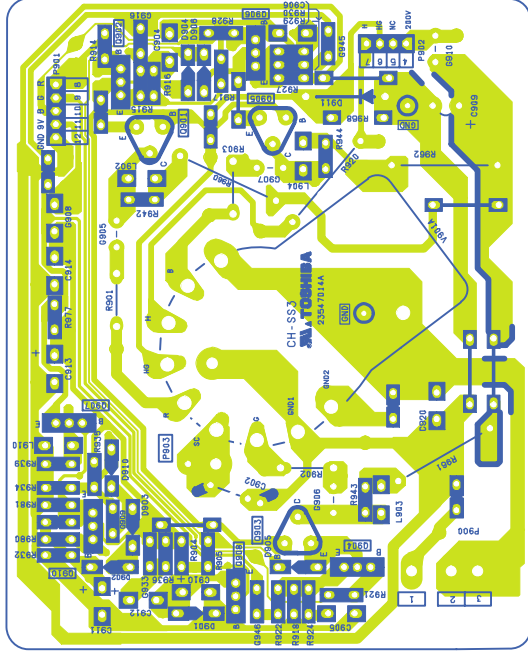


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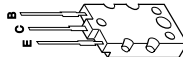
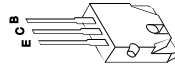
**MAIN BOARD PD1050B**  
**BOTTOM (FOIL) SIDE**



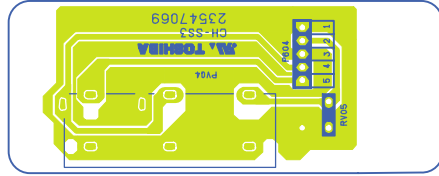
# **CRT DRIVE BOARD PD0629B** **BOTTOM (FOIL) SIDE**



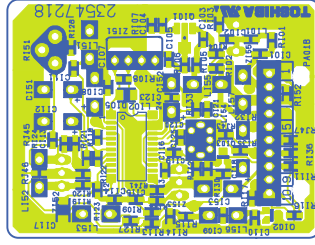
## **TERMINAL VIEW OF TRANSISTORS**

|   |                                                                                        |   |                                                                                   |   |                                                                                   |   |                                                                                       |                                                                                   |         |
|---|----------------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------|
| ① | 2SD2253<br>(old)<br>2SC5243                                                            | ② | 2SC3852<br>2SD1763A<br>2SC1569<br>2SC4544<br>2SA1788<br>2SA1306<br>2SA1186A       | ③ | 2SC752GTM<br>2SC2482<br>2SC2655<br>2SC4721P                                       | ④ | 2SC752<br>2SA562TM<br>2SA1015<br>2SC1815<br>2SC2878<br>2SC1740S<br>2SC2120<br>2SA9335 | ⑤                                                                                 | 2SA1788 |
| ⑥ | RN2203<br>RN2201<br>RN2004<br>RN1203<br>RN1204<br>RN2204<br>RN1205<br>RN1202<br>RN1201 | ⑦ | 2SD1554<br>2SD2253<br>2SD1556<br>2SC5143<br>2SD2553                               | ⑧ | ON4409                                                                            |   |                                                                                       |                                                                                   |         |
|   |      |   |  |   |  |   |      |  |         |

## **FRONT. AV BOARD PD0715A** **BOTTOM (FOIL) SIDE**



## **IF BOARD PD1022A** **BOTTOM (FOIL) SIDE**



# SCHEMATIC DIAGRAM

## MODEL : 36A43

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON THE MANUAL FOR THIS MODEL.

**CAUTION:** The international hazard symbols " $\triangle$ " in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on the MANUAL for this model. Do not degrade the safety of the receiver through improper servicing.

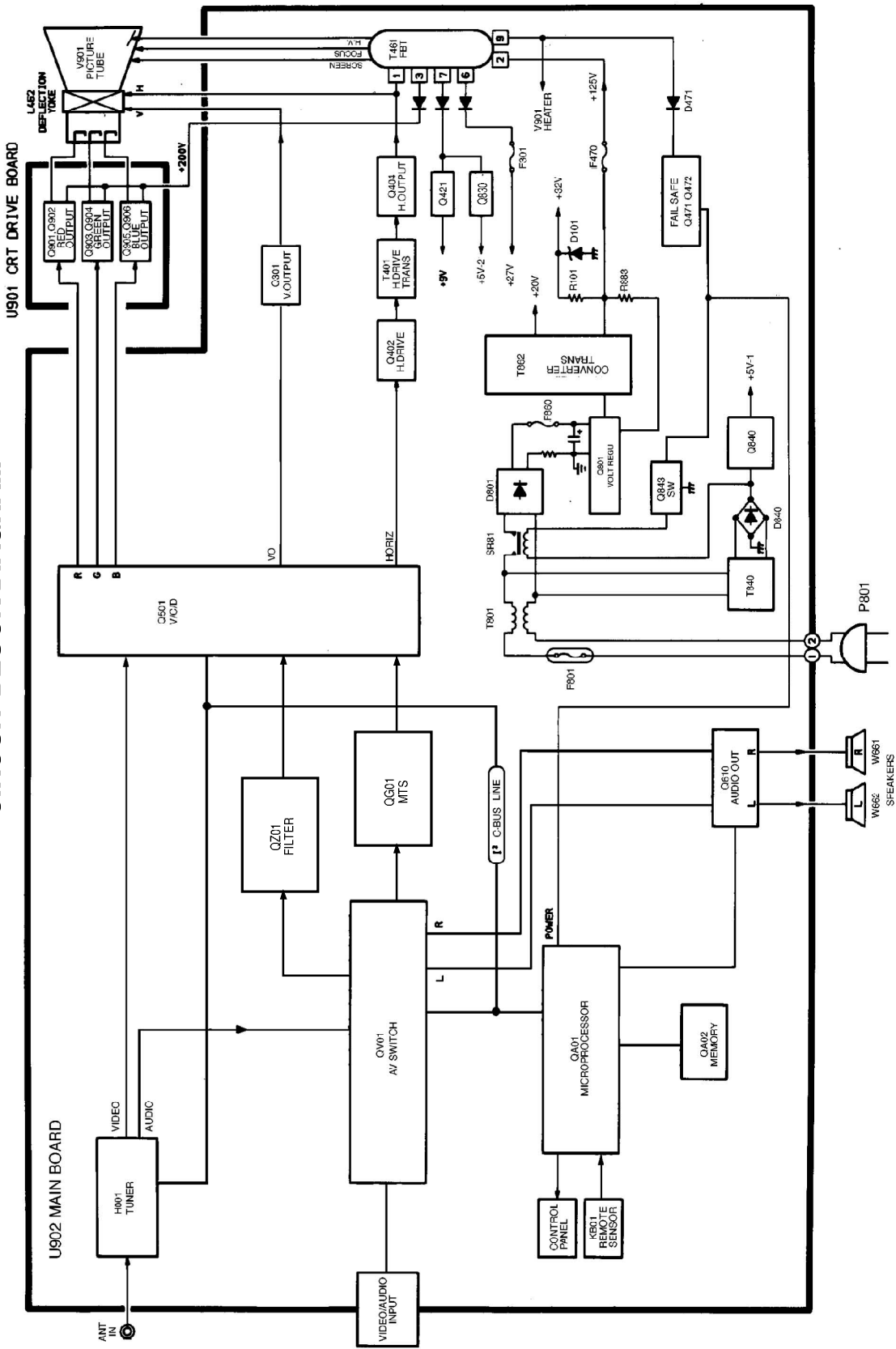
### NOTE:

- 1. RESISTOR** Resistance is shown in ohm [ $K = 1.000$ ,  $M = 1.000.000$ ]. All resistors are 1/6W and 5% tolerance carbon resistor, unless otherwise noted as the following marks.  
 $1/2R$  = Metal or Metal oxide of 1/2 watt       $1/2S$  = Carbon composition of 1/2 watt  
 $1RF$  = Fuse resistor of 1 watt       $10W$  = Cement of 10 watt  
 $K = \pm 10\%$      $G = \pm 2\%$      $F = \pm 1\%$
- 2. CAPACITOR** Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in  $\mu F$ , and the values more than 1 in pF.  
All capacitors are ceramic 50V, unless otherwise noted as the following marks.  
 Electrolytic capacitor       Mylar capacitor
- 3.** The parts indicated with " $\triangle$ " have special characteristics, and should be replaced with identical parts only.
- 4.** Voltages read with DIGITAL MULTI-METER from point indicated to chassis ground, using a color bar signal with all controls at normal, line voltage 120 volts.
- 5.** Waveforms are taken receiving color bar signal with enough sensitivity.
- 6.** Voltage reading shown are nominal values and may vary  $\pm 20\%$  except H.V.

### ■ SCHEMATIC DIAGRAM STRUCTURE:

|                                   |     |
|-----------------------------------|-----|
| — CRT-D / FRONT. AV Circuit ..... | 1/3 |
| — IF Circuit .....                | 2/3 |
| — MAIN Circuit .....              | 3/3 |

## CIRCUIT BLOCK DIAGRAM



| SPECIFICATIONS        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TELEVISION SYSTEM     | NTSC standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| CHANNEL COVERAGE      | VHF: 2 through 13<br>UHF: 14 through 69<br>Cable TV: mid band (A-8 through A-1, A through I)<br>super band (J through W)<br>hyper band (AA through ZZ, AAA, BBB)<br>ultra band (65 through 94, 100 through 125)                                                                                                                                                                                                                                                                                   |
| POWER SOURCE          | 120V AC, 60Hz, 94W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| AUDIO POWER           | 5W + 5W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| SPEAKER TYPE          | 2-3/8 x 4-3/4 inches (60 x 120 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| VIDEO/AUDIO TERMINALS | S-VIDEO INPUT<br>Y-INPUT: 1V (p-p), 75 ohm, negative sync.<br>C-INPUT: 0.286V (p-p) (burst signal), 75 ohm<br>VIDEO/AUDIO INPUT (VIDEO1/VIDEO2)<br>VIDEO: 1V(p-p), 75 ohm, negative sync.<br>AUDIO: 150mV(rms) (30% modulation equivalent, 47k ohm)<br>ColorStream™ (component video) INPUT<br>Y: 1V (p-p), 75 ohm<br>Cr: 0.7V (p-p), 75 ohm<br>Cb: 0.7V (p-p), 75 ohm<br>VIDEO/AUDIO OUTPUT<br>VIDEO: 1V(p-p), 75 ohm, negative sync.<br>AUDIO: 150mV(rms) (30% modulation equivalent, 4.7k ohm) |
| DIMENSIONS            | Width 970 mm<br>Height 765.5 mm<br>Depth 640 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| MASS                  | 69.9 kg (Approx.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

\* Please refer to owner's manual in detail.

**TOSHIBA CORPORATION**  
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN

# SCHEMATIC DIAGRAM

## MODEL : 36A43

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON THE MANUAL FOR THIS MODEL.

**CAUTION:** The international hazard symbols " $\triangle$ " in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on the MANUAL for this model. Do not degrade the safety of the receiver through improper servicing.

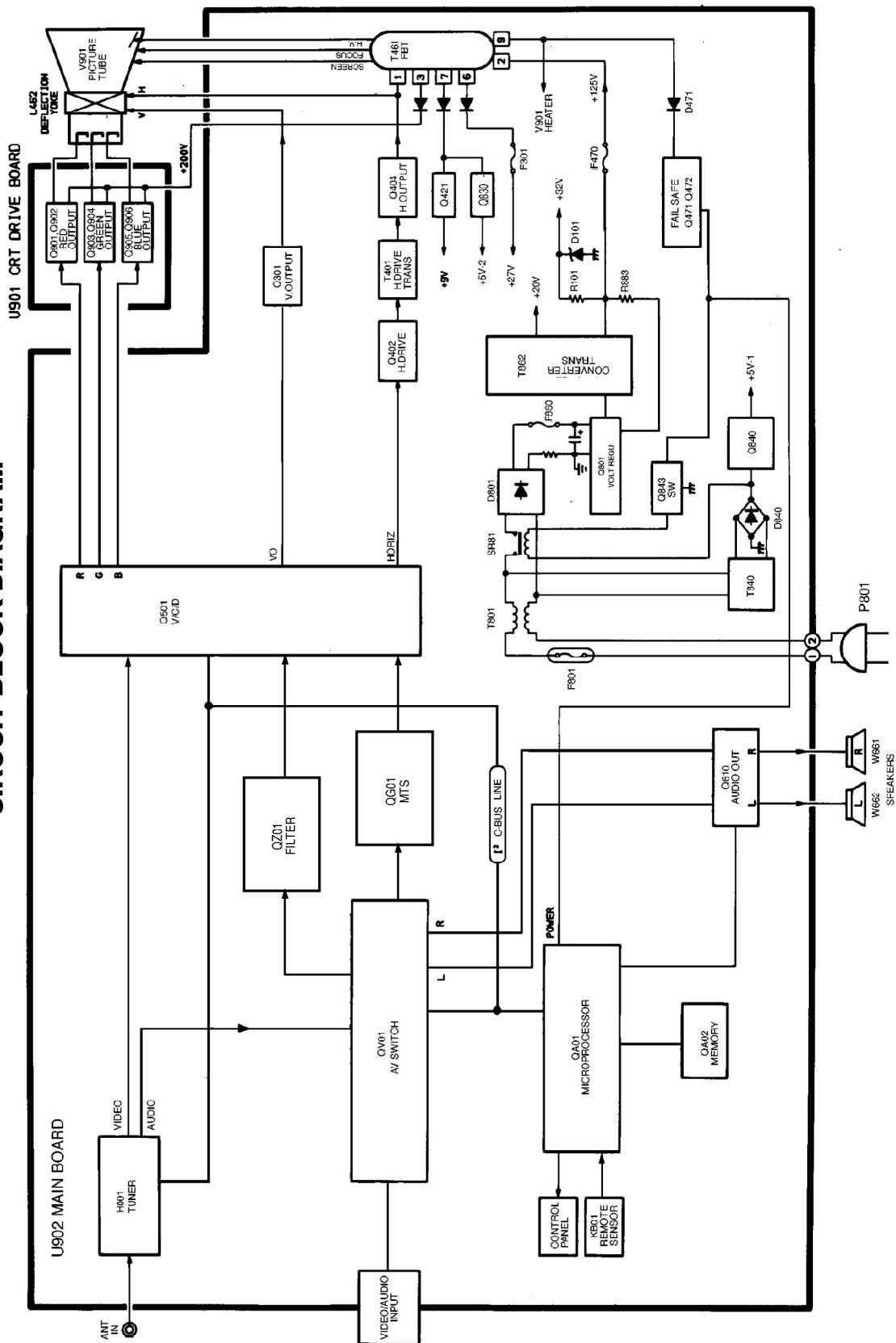
### NOTE:

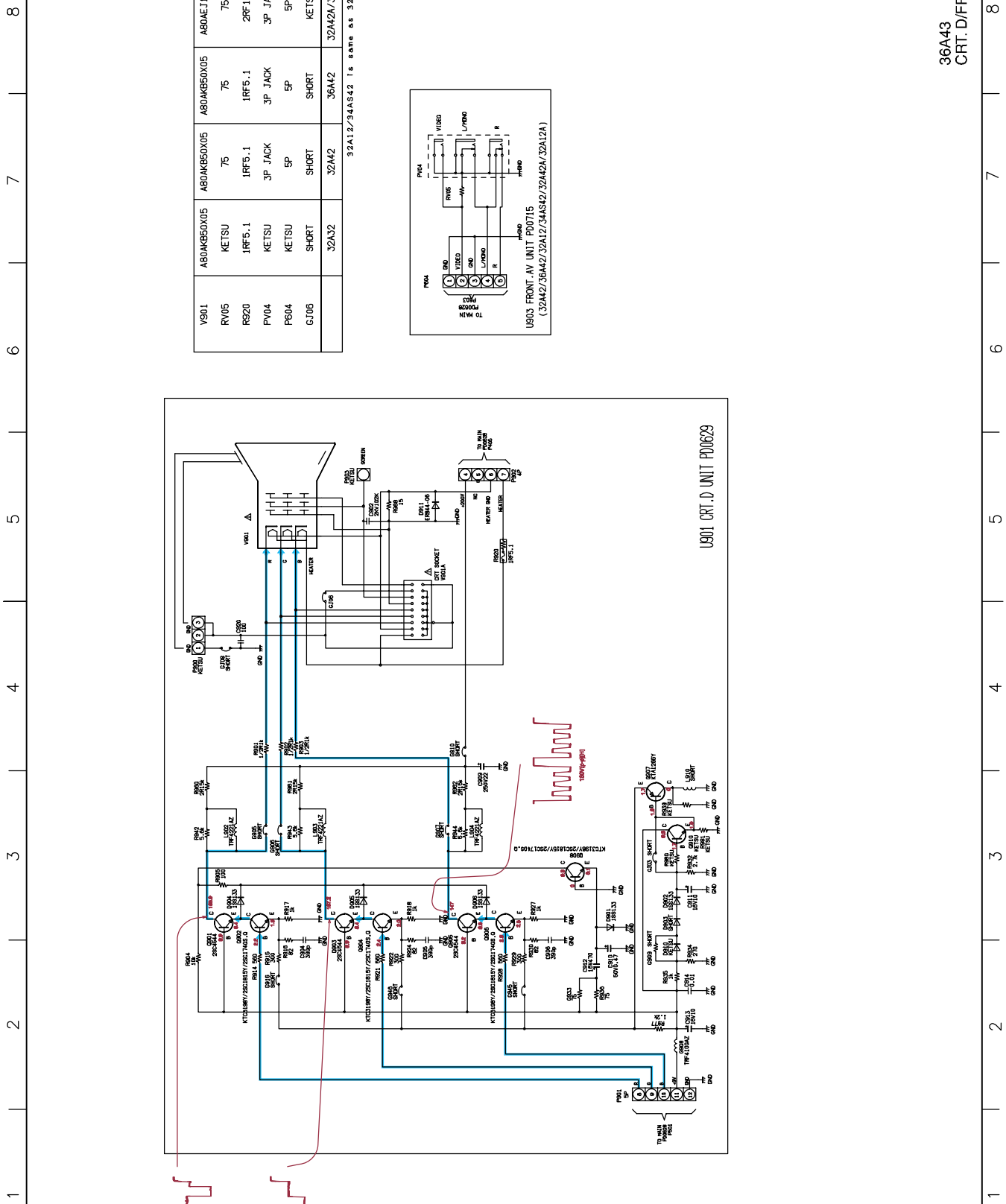
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### ■ SCHEMATIC DIAGRAM STRUCTURE:

|                                   |     |
|-----------------------------------|-----|
| — CRT-D / FRONT. AV Circuit ..... | 1/3 |
| — IF Circuit .....                | 2/3 |
| — MAIN Circuit .....              | 3/3 |

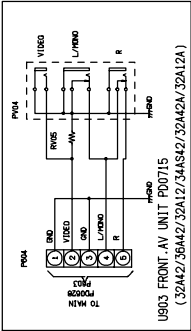
# CIRCUIT BLOCK DIAGRAM



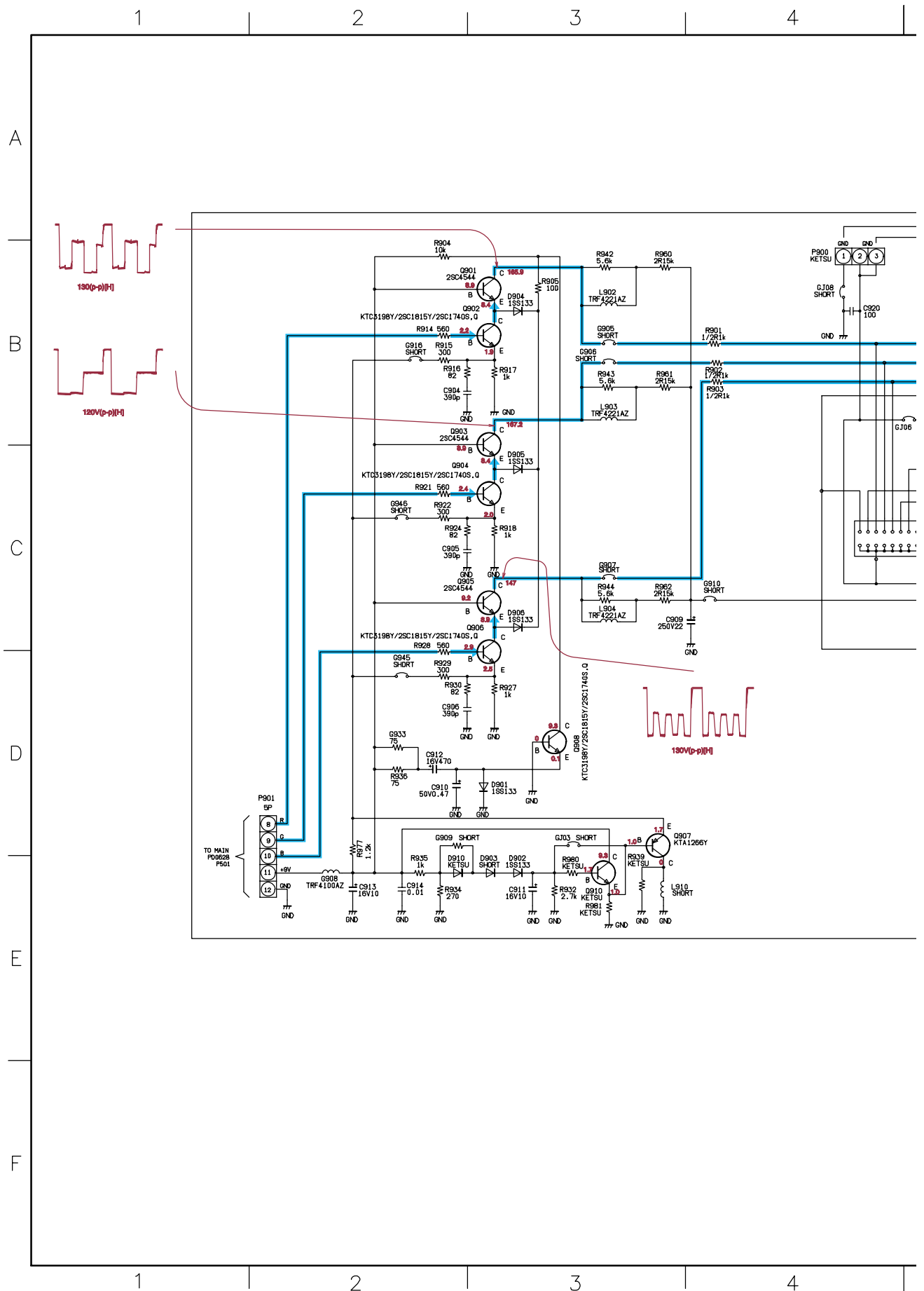


|      |             |             |             |               |
|------|-------------|-------------|-------------|---------------|
| V901 | A80AKB50X05 | A80AKB50X05 | A80AKB50X05 | A80AE115X05   |
| RV05 | KETSU       | 75          | 75          | 75            |
| RV20 | 1RF5.1      | 1RF5.1      | 1RF5.1      | 2RF1.8        |
| PV04 | KETSU       | 3P JACK     | 3P JACK     | 3P JACK       |
| PG04 | KETSU       | 5P          | 5P          | 5P            |
| GJ05 | SHORT       | SHORT       | SHORT       | KETSU         |
|      | 32A32       | 32A42       | 32A42       | 32A42A/32A12A |

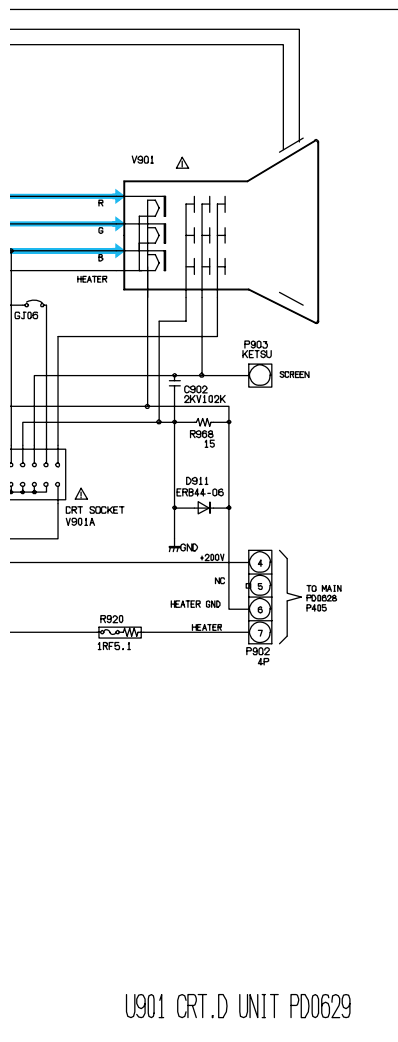
32A12/34A542 is same as 32A42



36A43  
CRT. D/Front. AV

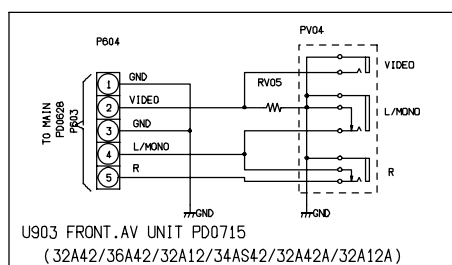


8



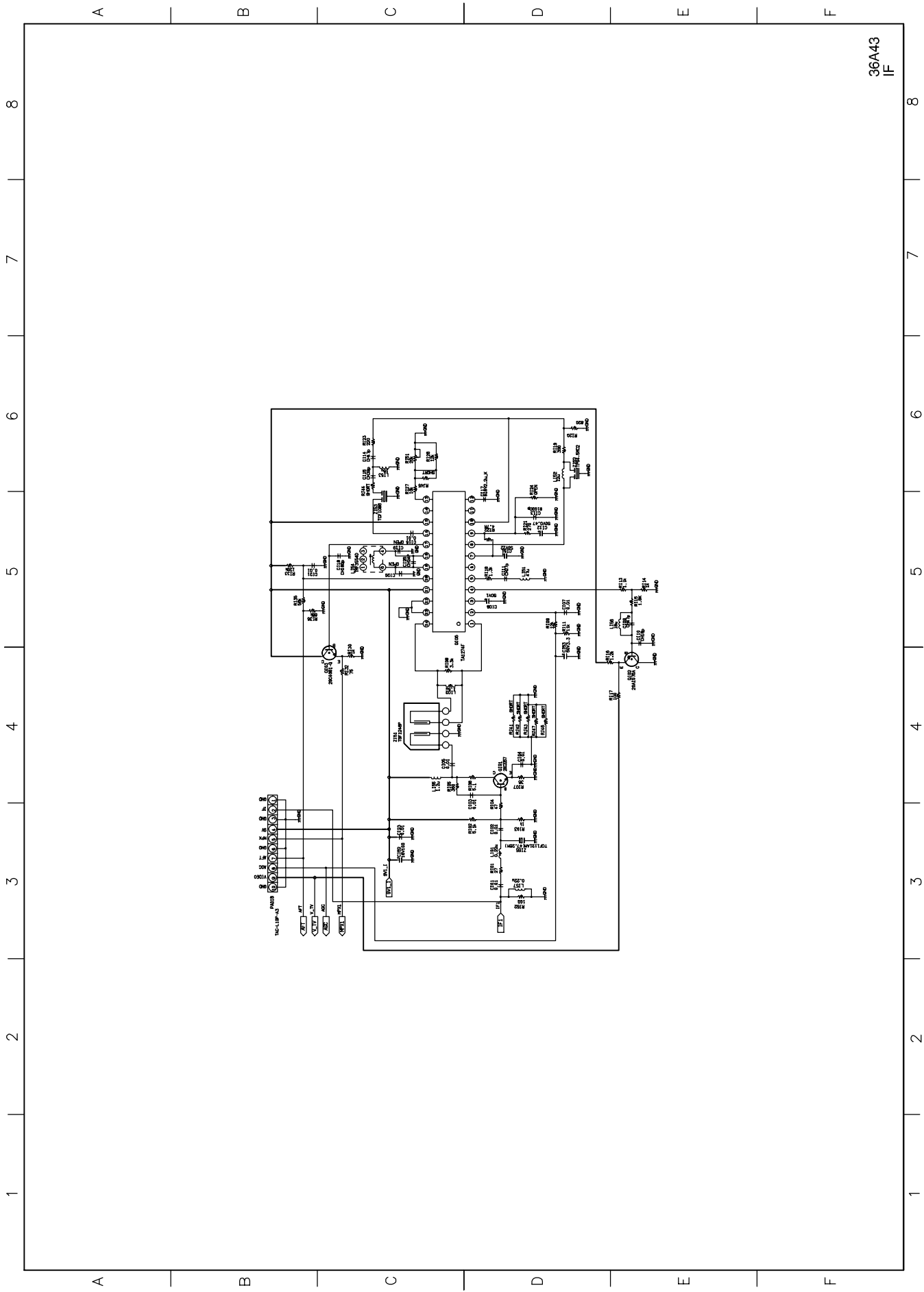
|      |             |             |             |               |
|------|-------------|-------------|-------------|---------------|
| V901 | A80AKB50X05 | A80AKB50X05 | A80AKB50X05 | A80AEJ15X05   |
| RV05 | KETSU       | 75          | 75          | 75            |
| R920 | 1RF5.1      | 1RF5.1      | 1RF5.1      | 2RF1.8        |
| PV04 | KETSU       | 3P JACK     | 3P JACK     | 3P JACK       |
| P604 | KETSU       | 5P          | 5P          | 5P            |
| GJ06 | SHORT       | SHORT       | SHORT       | KETSU         |
|      | 32A32       | 32A42       | 36A42       | 32A42A/32A12A |

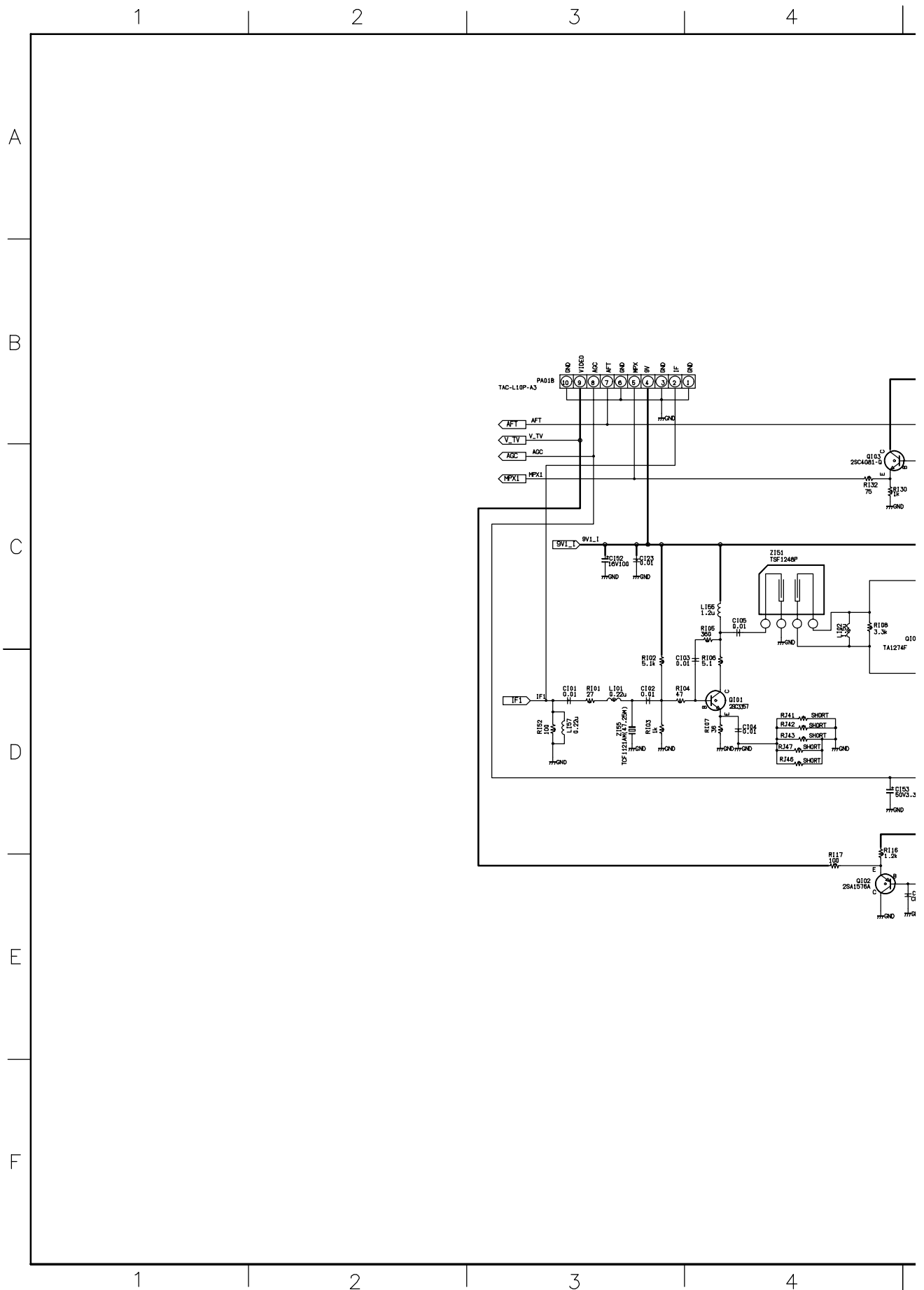
32A12/34AS42 is same as 32A42



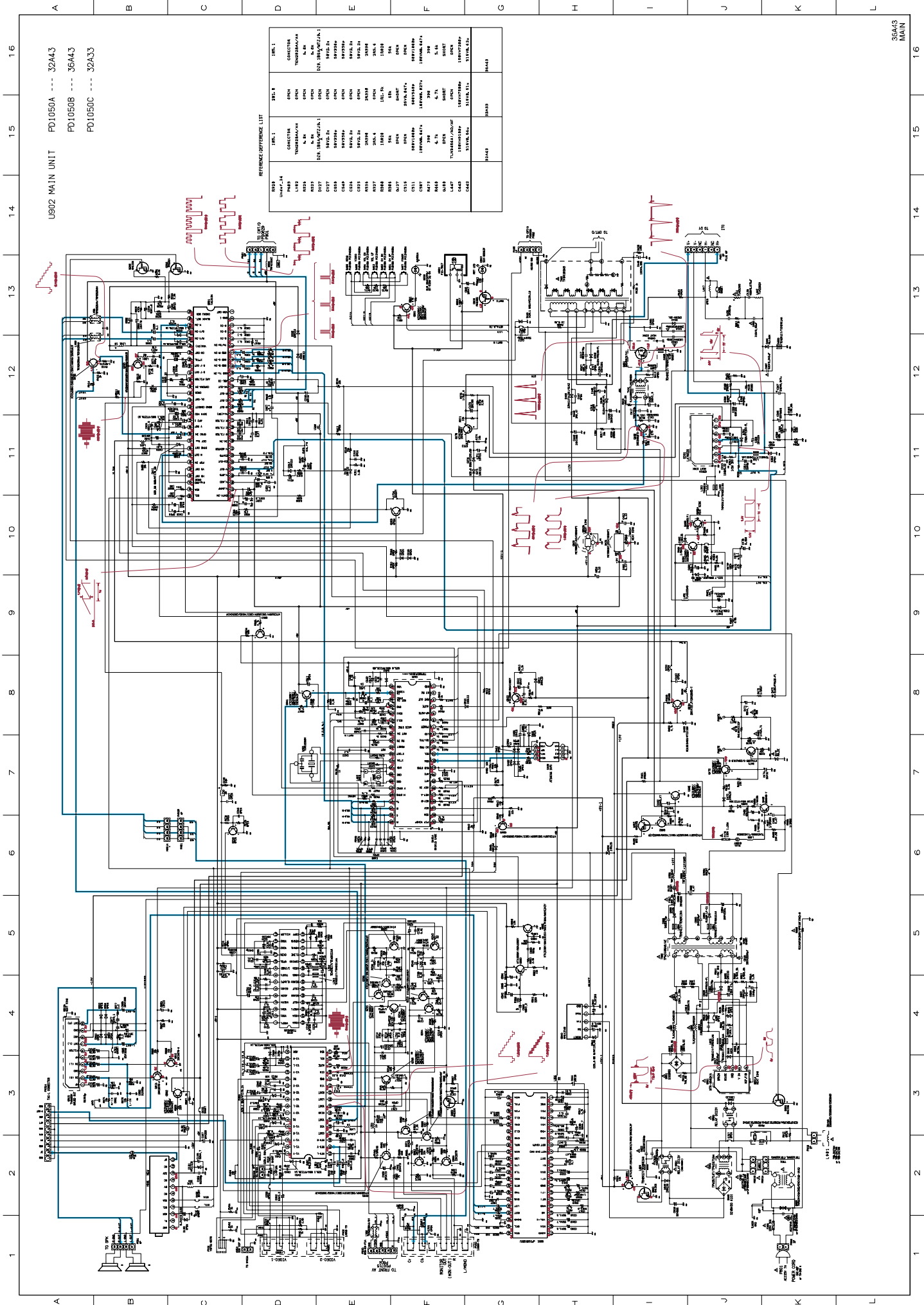
36A43  
CRT. D/FRONT. AV

8









1

2

3

A

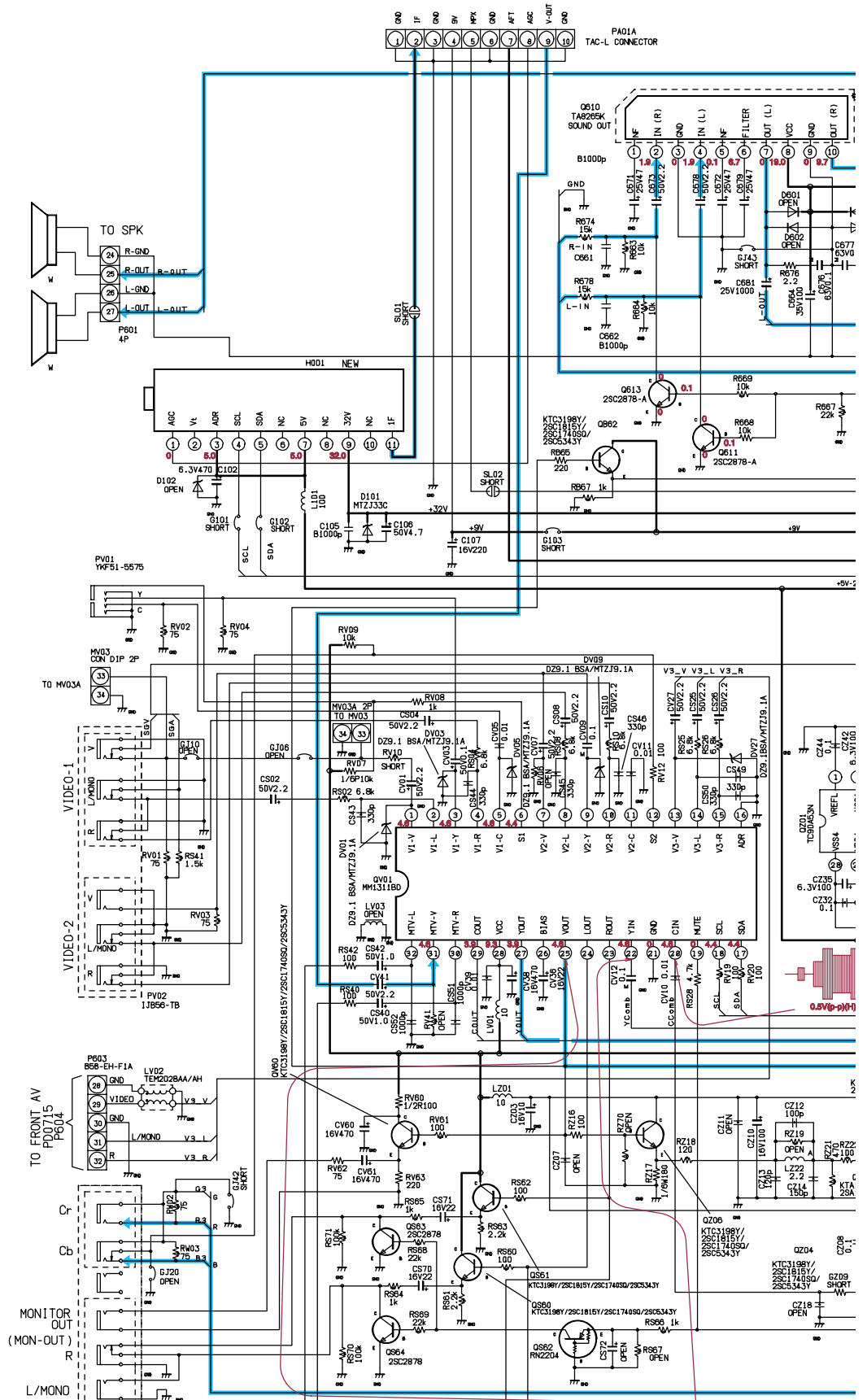
B

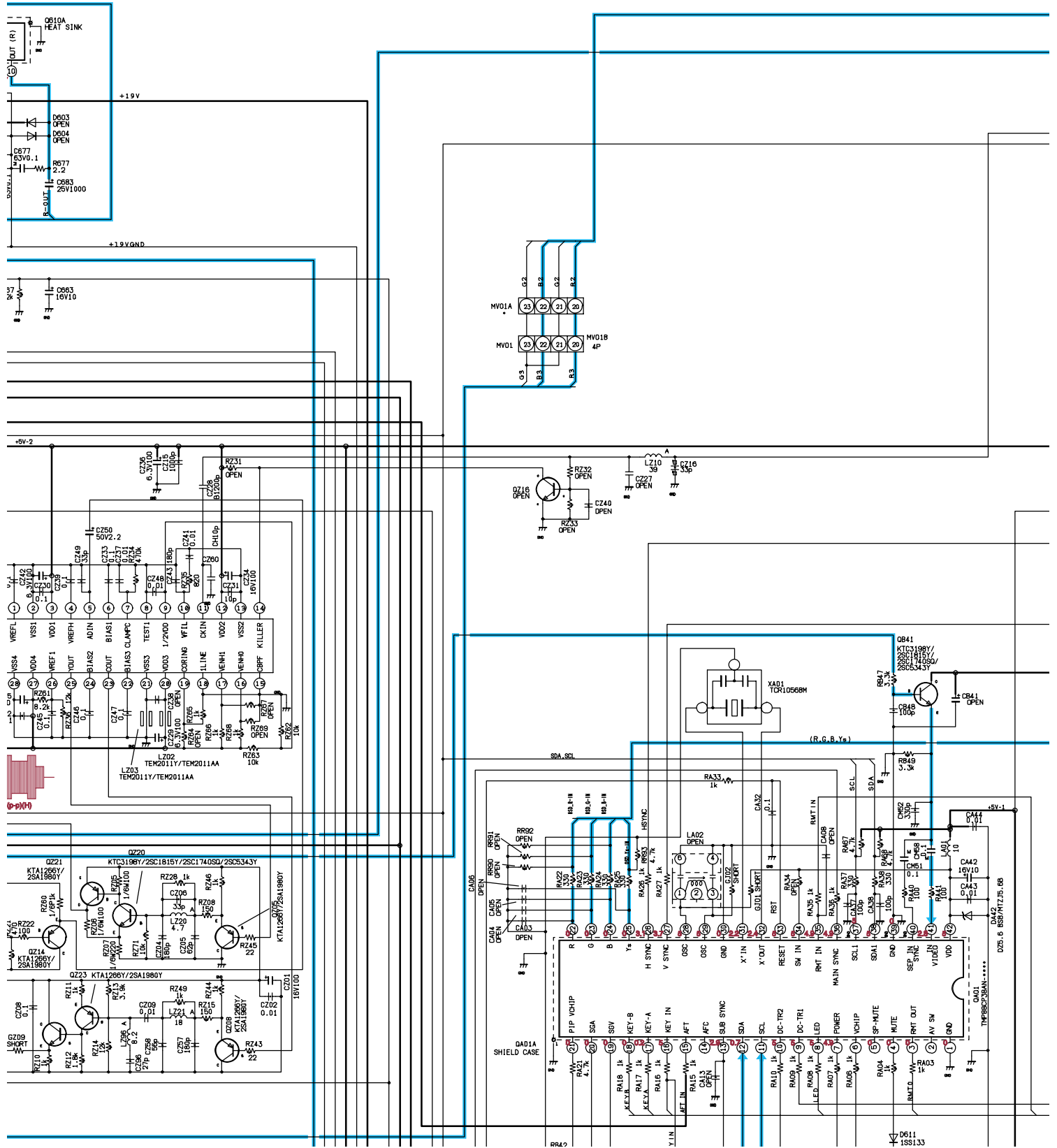
C

D

E

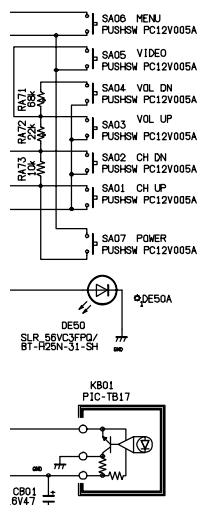
F







16

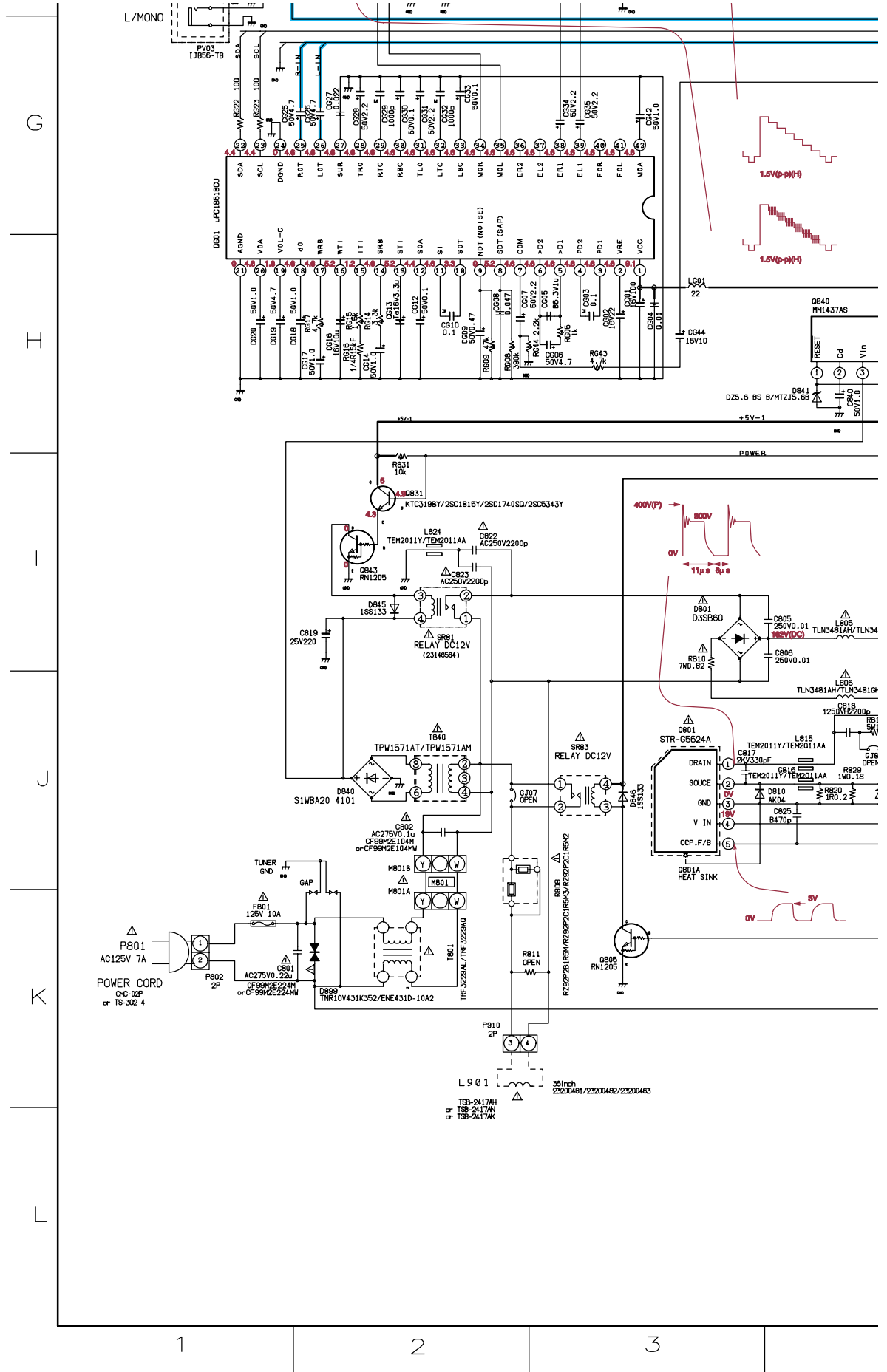


PD1050C - - - 32A33

D

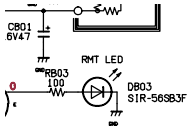
|          |                    |              |                    |
|----------|--------------------|--------------|--------------------|
| R920     | 1W5. 1             | 2W1. 8       | 1W5. 1             |
| Undef_24 |                    |              |                    |
| P603     | CONNECTOR          | OPEN         | CONNECTOR          |
| LV02     | TEM2028AA/AH       | OPEN         | TEM2028AA/AH       |
| RS26     | 6. 8k              | OPEN         | 6. 8k              |
| RS25     | 6. 8k              | OPEN         | 6. 8k              |
| DV27     | DZ9. 1BSA/MTZJ9. 1 | OPEN         | DZ9. 1BSA/MTZJ9. 1 |
| CV27     | 50V2. 2u           | OPEN         | 50V2. 2u           |
| CS50     | 50V330p            | OPEN         | 50V330p            |
| CS49     | 50V330p            | OPEN         | 50V330p            |
| CS26     | 50V2. 2u           | OPEN         | 50V2. 2u           |
| CS25     | 50V2. 2u           | OPEN         | 50V2. 2u           |
| R336     | 2R390              | 2R330        | 2R390              |
| R327     | 2R5. 6             | OPEN         | 2R5. 6             |
| R308     | 1R820              | 1R1. 5k      | 1R820              |
| R306     | 56k                | 68k          | 56k                |
| GJ27     | OPEN               | SHORT        | OPEN               |
| C315     | OPEN               | 25V0. 047u   | OPEN               |
| C311     | 500V1000p          | 500V560p     | 500V1000p          |
| C307     | 100VM0. 047u       | 100VM0. 027u | 100VM0. 047u       |
| R475     | 390                | 390          | 390                |
| R460     | 4. 7k              | 4. 7k        | 5. 6k              |
| GJ80     | OPEN               | SHORT        | SHORT              |
| L447     | TLN3456AI/AD/AF    | OPEN         | OPEN               |
| C443     | 150VH9100p         | 150VH7500p   | 150VH7200p         |
| C442     | 315V0. 56u         | 315V0. 51u   | 315V0. 62u         |

F

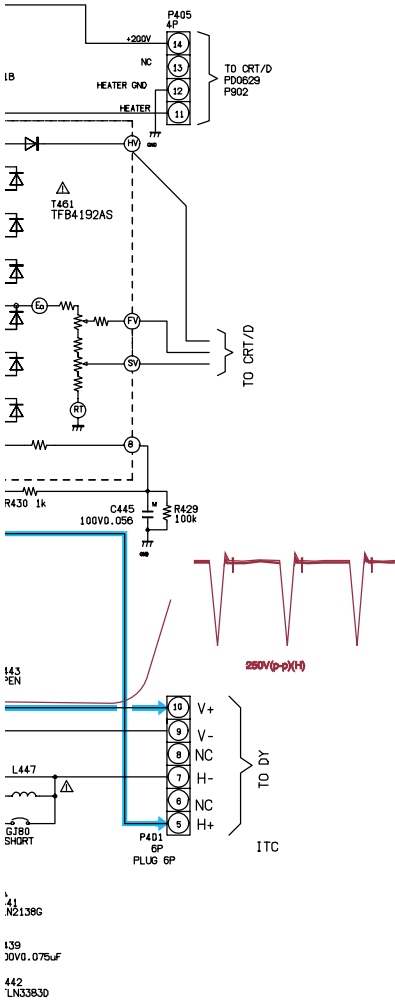








| C442 | 315V0.56u | 315V0.51u | 315V0.62u |
|------|-----------|-----------|-----------|
|      | 32A43     | 32A33     | 36A43     |



G

H

I

J

K

L

36A43  
MAIN